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The Braconidae (Hymenoptera) of Taiwan
VII. Subtribe Triaspina[1]

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Abstract: The subtribe Triaspina (Hymenoptera: Braconidae: Helconinae: Brachistini) is revised for Taiwan. Three new species of the genus *Canalicephalus* Gibson and 22 new species of the genus *Triaspis* Haliday are described and illustrated in this paper. Keys to the genera and species of the Taiwanese Triaspina are also presented.

Key words : Triaspina, Helconinae, Braconidae, Taxonomy, Taiwan.

INTRODUCTION

The subtribe Triaspina (Hymenoptera: Braconidae: Helconinae: Brachistini) is characterized by the following combination of characters: vein r-m of forewing absent, vein m-cu of forewing antefurcal; first metasomal tergum immovably joined to T2, forming a rigid carapace with T3. The Triaspina contains 4 genera: *Canalicephalus* Gibson, *Dicyrtaspis* Van Achterberg, *Triaspis* Haliday and *Urosigalphus* Ashmead. About 290 species have been known worldwide. The members of the subtribe Triaspina of Taiwan are largely unknown and only one species, *Schizoprymnus imitatus* Papp, were reported to occur in this island. In this paper 25 new species are described from Taiwan. In the specimens examined only " in AEI" (=in American Entomological Institute) is indicated as the depository institution; where do not indicated the depository is Insect Collection of the Taiwan Agricultural Research Institute, Taichung, Taiwan, R.O.C.

In the sections of specimens examined, the following abbreviations are used for the collectors: BHC (B.H. Chen), CCC (C.C. Chen), CCCh (C.C. Chien), CCP (C.C. Pang), CHW (C.H. Wang), CHY (C.H. Yang), CJL (C.J. Lee), CNL (C.N. Lin), CYW (C.Y. Wong), HT (Henry Townes), KCC (K.C. Chou), KSL (K.S. Lin), LYC (L.Y. Chou), SCL (S.C. Lin), TL (T. Lin), and WST (W.S. Tang).

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The complete information for the collecting sites which used in the specimens examined section under each species are as follows:

CHIAYI: Alishan 2,400m.

HUALIEN: Tayuling 2,560m.

NANTOU: Lienhuachih 650m, Lushan 1,000m, Meifeng 2,150m, Sungkang 2,100m, Tsuifeng 2,300m, Tungpu 1,200m, Wushe 1,150m.

TAICHUNG: Anmashan 2,275m, Kukuan 730m, Wanfeng, Wufeng, Wuling 1,900m.

TAITUNG: Lanyu.

TERMINOLOGY

The terminology used here mainly follow Huber and Sharkey[10], Gauld and Bolton[8], and Van Achterberg[1] with additions and modifications. Descriptions of sculpture are largely based on Harris[9]. Some of these terms are explained as follows:

Collar: the more or less raised, anteroventral margin of the pronotum, just behind the head. The collar crosses the dorsal aspect of the pronotum and extends ventrally and posteriorly[17].

Coriaceous: mesh-like pattern in which the cells are flat and distinguished from each other by fine, impressed lines[6].

Flagellomere (F1, F2…): any flagellar segment of antenna.

Frontal line or carina: median groove or carina leading, when complete, from anterior ocellus to toruli[4].

Frontal depression: depressed area of frons behind each torulus[3].

Intertentorial line: shortest distance between anterior tentorial pits.

OD: diameter of ocellus, maximal diameter of a posterior ocellus[11].

Reticulate: mesh-like pattern in which the cells are shallowly concave so as to be separated by ridges[6].

Striate-punctate: with rows of punctures.

Subalar fossa: depressed area of mesopleuron beneath subalar prominence[4]. Van Achterberg[1] use the term, epicnemia area.

Temple: an area of the gena between the comound eye and the occipital carina.

Tentorial index: tentorio-ocular line over intertentorial line[16].

Tentorio-ocular line: shortest distance between anterior tentorial pit and eye.

Tergum(T1, T2,…): a dorsal sclerite of a body segment, which may be subdivided into tergites; specifically used for the metasoma[10].

Vein length: measured from the center of one juncture to the center of the next[17].

Key to genera and subgenera of the subtribe Triaspina from Taiwan

1. Vein M+Cu of forewing distinctly curved; transscutal articulation distinct ····· ····· *Canalicephalus* Gibson

-. Vein M+Cu of forewing nearly straight; transscutal articulation not developed ····· ····· *Triaspis* Haliday…2

2. Carapace distinctly segmented, definitely with 3 terga ……*Triaspis* (*Triaspis*) Haliday
-. Carapace not segmented, or with sutures only weakly developed ……
…… *Triaspis* (*Schizoprymnus*) Foerster

Genus *CANALICEPHALUS* Gibson

Canalicephalus Gibson, 1977. Pac. Ins. 17: 241. Type species: *Canalicephalus orientalis* Gibson, original designation.

The genus *Canalicephalus* is characterized by the following combination of characters: vertex deeply notched; frons laterally without a pair of punctate tubercles; frontal carina distinct; frontal depression deep, glabrous; transscutal articulation distinct; vein M+Cu of forewing distinctly curved; outer hind tarsal claw similar in size to inner claw, carapace completely without sutures. It contains 4 species in the world. In this paper 3 new species are described from Taiwan.

Key to species of the genus *Canalicephalus* from Taiwan

1. Ovipositor sheath 0.41 times as long as forewing; carapace smooth apically and apicoventrally, without groove apicoventrally ……*longus* sp. n.
-. Ovipositor sheath 0.23-0.30 times as long as forewing; carapace rugose apically and apicoventrally, with or without groove apicoventrally ……2
2. Carapace with distinct groove apicoventrally; frons rugose-reticulate ……*fugou* sp. n.
-. Carapace without distinct groove apicoventrally; frons densely punctate ……
…… *taiwanensis* sp. n.

Canalicephalus fugou sp. n.

(Figs. 11, 35, 59, 85, 113, 137, 163, 189, 215, 241)

Female: Head: 2.0 times as wide as long and 1.3 times wider than mesonotum. Eye 2.8 times as long as temple. Temple densely punctate; frons rugose-reticulate; vertex reticulate. POL: OD: OOL=1: 0.41: 0.97. Face 0.49 times as high as wide and 1.5 times as wide as eye height and 0.64 times as wide as head, rugose-reticulate; cypeus rugose. Tentorial index 1.2. Malar space 1.6 times basal width of mandible. Antenna 17-segmented; F1 1.1 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.0, 2.9 and 1.1 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side reticulate, dorsally densely setae. Notauli deep and crenulate; mesoscutum densely, shallowly punctate, rather rugulose anteriorly, middle lobe foveate posteriorly; scutellum puncticulate. Subalar fossa punctate, weakly crenulate; precoxal sulcus shallowly depressed, reticulate; anterior border and posteroventrally of mesopleuron punctulate; disc of mesopleuron smooth. Metapleuron reticulate. Propodeum reticulate-rugose; with median longitudinal carina anteriorly and with medioposterior area.

Wings: Forewing: stigma 2.4 times as long as wide; basal posterior section of stigma 1.4

times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 6.4: 1.7; m-cu: 2/Rs+M= 1.1: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.32: 1. Hindwing: r-m: 1/M=0.33: 1; 1/M: Cu&cu-a=1.3: 1.

Hind leg: Coxa largely smooth. Lengths of femur, tibia and basitarsus 2.7, 4.7 and 3.5 times their width, respectively; tibia 1.1 times as long as femur; inner and outer spurs of tibia 0.50 and 0.42 times as long as basitarsus, respectively.

Metasoma: 2.0 times as long as wide; costate, interspace strigulate, with distinct groove apicoventrally. Dorsal carinae disinct basally. Ovipositor sheath 0.30 times as long as forewing.

Color: Black; palpi brownish yellow, mandible (apex dark brown) yellowish brown, tegula dark brown. Antenna yellowish brown basally, dark brown apically. Wings hyaline, stigma and veins dark brown. Legs yellowish brown; hing tibia and tarsus dark brown. Ovipositor sheath dark brown.

Lengths: Body 3.6 mm, antenna 2.3 mm, forewing 3.0 mm, ovipositor sheath 0.88 mm.

Male: Unknown.

Holotype: ♀, Tungpu, 20-22.VI.1980 (CCC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *C. taiwanensis* sp. n., but differs from it by the middle lobe of mesoscutum foveate posteriorly, carapace with distinct groove apicoventrally and the frons rugose-reticulate.

Etymology: The specific name is the Chinese noun "fugou" (ventral groove). It refers to the carapace with distinct groove apico-ventrally.

Canalicephalus longus sp. n.

(Figs. 12, 36, 60, 86, 114, 138, 164, 190, 216, 242)

Female: Head: 1.9 times as wide as long and 1.2 times wider than mesonotum. Eye 4.6 times as long as temple. Temple densely punctate; frons punctate-reticulate, rugose ventrally; vertex densely punctate. POL: OD: OOL=1: 0.39: 0.61. Face 0.53 times as high as wide and 1.3 times as wide as eye height and 0.59 times as wide as head, rugose-reticulate; cypeus rugose-reticulate. Tentorial index 1.3. Malar space 1.4 times basal width of mandible, rugose. Antenna 17-segmented; F1 0.90 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.8, 4.2 and 1.7 times their width, respectively.

Mesosoma: 1.5 times as long as high. Pronotal side reticulate, dorsally densely setae. Notauli deep and crenulate; mesoscutum densely, shallowly punctate, middle lobe foveate posteriorly; scutellum puncticulate. Subalar fossa punctulate, precoxal sulcus crenulate; anterior border and posteroventrally of mesopleuron puntulate; disc of mesopleuron smooth. Metapleuron largely reticulate, rather smooth dorsally. Propodeum reticulate-rugose; with median longitudinal carina anteriorly and transverse carina, without medioposterior area.

Wings: Forewing: stigma 2.4 times as long as wide; basal posterior section of stigma 1.4

times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 5.9: 1.5; m-cu: 2/Rs+M= 1.1: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.31: 1. Hindwing: r-m: 1/M=0.55: 1; 1/M: Cu&cu-a =1.2: 1.

Hind leg: Coxa largely smooth. Lengths of femur, tibia and basitarsus 3.1, 5.6 and 3.9 times their width, respectively; tibia 1.1 times as long as femur; inner and outer spurs of tibia, 0.52 and 0.45 times as long as basitarsus, respectively.

Metasoma: 1.8 times as long as wide; costate, interspace strigulate, rather smooth apically and apicoventrally, without groove apicoventrally. Dorsal carinae distinct basally. Ovipositor sheath 0.41 times as long as forewing.

Color: Black; palpi yellowish brown, tegula dark brown. Antenna yellowish brown basally, dark brown apically. Wings hyaline, stigma and veins dark brown. Legs yellowish brown; hing tibia and tarsus brown. Ovipositor sheath dark brown.

Lengths: Body 3.9 mm, antenna 2.9 mm, forewing 3.2 mm, ovipositor sheath 1.3 mm.

Male: Unknown.

Holotype: ♀, Tungpu, 23-27.VII.1984 (KCC & CHY).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Canalicephalus* species by the ovipositor sheath about 0.4 times as long forewing; carapace smoth apically and apicoventrally, without groove apicoventrally.

Etymology: *Longus* means long in Latin, refers to its ovipositor sheath rather longer.

Canalicephalus taiwanensis sp. n.

(Figs. 13, 37, 61, 87, 115, 139, 165, 191, 217, 243)

Female: Head: 2.0 times as wide as long and 1.2 times wider than mesonotum. Eye 3.9 times as long as temple. Temple, frons and vertex densely punctate. POL: OD: OOL=1: 0.46: 0.81. Face 0.55 times as high as wide and 1.3 times as wide as eye height and 0.59 times as wide as head, reticulate to rugose-reticulate; clypeus rugulose-reticulate. Tentorial index 1. 2. Malar space 1.3 times basal width of mandible, rugulose-reticulate. Antenna 17-segmented; F1 1.1 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.0, 2.8 and 1.3 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side reticulate, dorsally densely setae. Notauli deep and crenulate; mesoscutum punctulate, punctures larger posteriorly; scutellum sparsely punctate. Subalar fossa weakly crenulate; precoxal sulcus reticulate, disc of mesopleuron largely smooth, sparsely punctate posteroventrally. Metapleuron reticulate. Propodeum reticulate-rugose; with median longitudinal carina anteriorly and shortly developed transverse carina, without medioposterior area.

Wings: Forewing: stigma 2.3 times as long as wide; basal posterior section of stigma 1.3 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 5.6: 1.5; m-cu: 2/Rs+M= 1.2: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.30: 1. Hindwing: r-m: 1/M=0.45: 1; 1/M: Cu&cu-a=1.1: 1.

Hind leg: Coxa largely smooth. Lengths of femur, tibia and basitarsus 2.8, 4.4 and 3.7 times their width, respectively; tibia 1.1 times as long as femur; inner and outer spurs of tibia, 0.59 and 0.50 times as long as basitarsus, respectively.

Metasoma: 1.9 times as long as wide; costate, interspace strigulate, without distinct groove apicoventrally. Dorsal carinae disinct basally. Ovipositor sheath 0.23 times as long as forewing.

Color: Black; palpi yellowish brown, tegula blackish brown. Antenna yellowish brown basally, dark brown apically. Wings hyaline, stigma and veins dark brown. Legs yellowish brown; hing tibia (except basally) and tarsus dark brown. Ovipositor sheath dark brown.

Lengths: Body 3.3 mm, antenna 2.1 mm, forewing 2.7 mm, ovipositor sheath 0.63 mm.

Male: Similar to female.

Holotype: ♀, Lienhuachih, VIII.1984 (KCL & KCC). Paratypes: Lienhuachih, 1 ♀, same data as holotye. Tungpu, 1♂, 23-27.VII.1984 (KCC & CHY).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *C. fugou* sp. n., but differs from it by the middle lobe of mesoscutum punctate posteriorly, carapace without distinct groove apicoventrally, frons densely punctate.

Etymology: The specific name is derived from Taiwan.

Genus *TRIASPIS* Haliday

Triaspis Haliday, 1835. Ent. Mag. 3: 124, as subgenus of *Helcon*. Type species: *Sigalphus caudatus* Nees; designated by Viereck, 1912. - Viereck, 1912. Proc. U.S. natn. Mus. 42: 628. - Martin, 1956. Publs. Dep. Agric. Can. 965: 61. - Mason, 1974. Proc. Entomol. Soc. Wash. 76(3): 245. - Papp, 1984. Acta Zool. Hung. 30(1-2): 139.

Schizoprymnus Foerster, 1862. Verh. naturh. Ver. preuss. Rheinl. 19: 242. Type species: *Sigalphus obscurus* Nees, by monotypy and original designation.

Ichneutipterus Vachal, 1907. Revue Ent. 26: 122. Type species: *Sigalphus* ? *ichneutipterus* Vachal, by monotypy.

Muiriella Fullaway 1919. J. Straits Brch R. asiat. Soc. 80: 47. Type species: *Muiriella concisa* Fullaway, by monotypy and original designation.

Fahringer[7] placed *Schizoprymnus* Foerster as a subgenus of *Triaspis* Haliday and this is followed by De Saeger[5] and Martin[12]. However, Papp[13-15] and Belokobylskij[2] treated them as separate genera. Papp[13] considered *Muiriella* Fullaway as a subgenus of *Schizoprymnus*. The authors consider *Schizoprymnus* and *Muiriella* as subgenera of *Triaspis* in this paper.

The genus *Triaspis* is characterized by the following combination of characters: vertex without notched; frons laterally without a pair of punctate tubercles; transscutal articulation not developed; vein M+Cu of forewing nearly straight; outer hind tarsal claw similar in size to inner claw; carapace completely without sutures, or with distinct sutures. It

contains about 200 species in the world. In this paper 22 new species are described from Taiwan.

Subgenus *SCHIZOPRYMNUS* Foerster

Schizoprymnus Foerster, 1862. Verh. naturh. Ver. preuss. Rheinl. 19: 242. Type species: *Sigalphus obscurus* Nees, by monotypy and original designation. - Gibson, 1972. Misc. Publ. Entomol. Soc. Amer. 8: 85. - Papp, 1984. Acta Zool. Hung. 30(1-2): 138.

Triaspis (*Schizoprymnus*): Fahringer, 1934. Opusc. bracon 3(5-8): 368. - Martin, 1956. Publs. Dep. Agric. Can. 965: 98.

The subgenus *Schizoprymnus* is characterized by the following combination of characters: propodeum without dinstict spines; carapace without sutures, or at most first suture between T1 and T2 more or less distinct, second suture between T2 and T3 effaced; rim of carapace behind usually not denticulate. It contains about 82 species in the world. In this Paper 20 new species are described from Taiwan.

Key to species of the subgenus *Schizoprymnus* from Taiwan

1. Rim of carapace behind weakly denticulate (Fig. 220) ..... *chouwen* sp. n.
-. Rim of carapace behind not denticulate (Fig. 221) 2
2. T3 and precoxal sulcus completely smooth ..... *calvus* sp. n.
-. T3 weakly to strongly sculptured, at most smooth apically; precoxal at least weakly sculptured 3
3. Frons with large lamellate frontal carina; ovipositor sheath 0.25 times as long as forewing 4
-. Frons without large lamellate frontal carina; ovipositor sheath variable 5
4. Frons rugulose-reticulate laterally; clypeus convex apically ..... *borpian* sp. n.
-. Frons punctulate laterally; clypeus almost straight apically ..... *lienhuachihensis* sp. n.
5. Carapace apicoventrally distinctly incurved ..... *imitatus* Papp
-. Carapace apicoventrally not or at most weakly incurved 6
6. Vein 1/R1 of forewing shorter than or subequal to stigmal length 7
-. Vein 1/R1 of forewing distinctly longer than stigmal length 17
7. Clypeus concave apically, sharply pointed medially 8
-. Clypeus almost straight to convex, not sharply pointed medially 10
8. Metasoma 1.7 times as long as wide; carapace apicoventrally weakly incurved ..... *shan* sp. n.
-. Metasoma 1.3 times as long as wide; carapace apicoventrally almost not incurved 9
9. Metasoma distinctly higher posteriorly than anteriorly (Fig. 194); antenna 23-segmented; metacoxa rugulose basally; vein 1/R1 of forewing almost as long as stigmal length ..... *hui* sp. n.
-. Metasoma indistinctly higher posteriorly than anteriorly (Fig. 192); antenna 19-segmented; metacoxa smooth basally; vein 1/R1 of forewing shorter than stigmal length ..... *chiu* sp. n.

10. Antenna 36-segmented; ovipositor sheath 0.65 times as long as forewing length ..... *bicolor* sp. n.
-. Antenna 16-25-segmented; ovipositor sheath 0.27-0.48 times as long as forewing length 11
11. Apical rim of carapace almost not emarginated; ovipositor sheath 0.27 times as long as forewing length ..... *plenus* sp. n.
-. Apical rim of carapace moderately to strongly emarginated or semicircular emarginated; ovipositor sheath 0.33-0.48 times as long as forewing length 12
12. Tentorial index 1.2; apical rim of carapace semicircular emarginated (Fig. 225) ..... *loi* sp. n.
-. Tentorial index 0.5-0.6; apical rim of carapace moderately to strongly emarginated (Fig. 232) 13
13. Carinae on T1+T2 more straight and parallel (Fig. 177); metasoma 1.7 times as long as wide ..... *ketiao* sp. n.
-. Carinae on T1+T2 less straight and parallel (Figs. 166, 171, 174, 175); metasoma 1.3-1.5 times as long as wide 14
14. Ovipositor sheath 0.33 times as long as forewing length ..... *distinctus* sp. n.
-. Ovipositor sheath 0.44-0.48 times as long as forewing length 15
15. Metacoxa black ..... *beitun* sp. n.
-. Metacoxa largely brownish yellow 16
16. Body black; metasoma 1.3 times as long as wide ..... *robustus* sp. n.
-. Body dark brown: metasoma 1.5 times as long as wide ..... *tungpuensis* sp. n.
17. Ovipositor sheath distinctly shorter than carapace 18
-. Ovipositor sheath distinctly longer than carapace 20
18. Metasoma in dorsal view constricted posteriorly (Fig. 176); tentorial index 0.64 ..... *fessus* sp. n.
-. Metasoma in dorsal view rather round posteriorly (Figs. 170, 186); tentorial index 0.75-0.85 19
19. Clypeus distinctly rugose ventrally; precoxal sulcus rugose-reticulate ..... *chunji* sp. n.
-. Clypeus sparsely punctate ventrally; precoxal sulcus foveate ..... *curvatus* sp. n.
20. Ovipositor sheath 0.55 times as long as forewing length; metasoma 1.2 times as long as wide; antenna 23-25-segmented ..... *kueichia* sp. n.
-. Ovipositor sheath 0.69 times as long as forewing length; metasoma 1.5 times as long as wide; antenna 17-20-segmented ..... *ovatus* sp. n.

Triaspis (*Schizoprymnus*) *beitun* sp. n.

(Figs. 28, 38, 62, 88, 116, 140, 166, 195, 235, 244)

Female: Head: 1.8 times as wide as long and 1.3 times wider than mesonotum. Eye 0.92 times as long as temple. Temple and vertex puncticulate; frons punctulate laterally, mediodorsally glabrous, medioventrally with curved carinae; without large lamellate frontal carina. POL: OD: OOL=1: 0.62: 1.7. Face 0.54 times as high as wide and 1.2 times as wide as eye height and 0.59 times as wide as head; punctulate, with rugae dorsally; clypeus

puncticulate, almost straight apically, not sharply pointed medially. Tentorial index 0.55. Malar space 0.86 times basal width of mandible. Antenna 21-23-segmented; F1 1.0 times as long as F2; lengths of F1, F2 and penultimate flagellomere 2.5, 2.5 and 1.4 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side medially and anteroventrally more or less rugulose; rest largely smooth. Notauli deep and crenulate; mesoscutum punctulate, middle lobe rugulose posteriorly; scutellum puncticulate. Subalar fossa smooth with carinae; precoxal sulcus rugulose-reticulate; disc of mesopleuron glabrate. Metapleuron rather punctulate dorsally; rugulose-rugose ventrally Propodeum punctulate anteriorly, more or less rugulose-reticulate posteriorly; with median longitudinal carina anteriorly and transverse carina, without distinct medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.8 times as long as wide; 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.1 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 8.8: 2.2; m-cu: 2/Rs+M=1.6: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.23: 1. Hindwing: r-m: 1/M=0.42: 1; 1/M: Cu&cu-a=2.4: 1.

Hind leg: Coxa rugulose dorsobasally. Lengths of femur, tibia and basitarsus 3.7, 7.1 and 4.7 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.50 and 0.43 times as long as basitarsus, respectively.

Metasoma: 1.4 times as long as wide; rugose-reticulate; apically not incurved. T1 0.68 times as long as wide apically; dorsal carinae disinct anteriorly; T2+T3 0.81 times as long as wide. Apical rim of carapace strongly emarginated. Ovipositor sheath 0.36 times as long as forewing.

Color: Black; palpi yellow, tegula dark briown. Antenna blackish brown. Wings hyaline, stigma and veins dark brown. Legs brown; coxae more or less black, hind tibia (except base) and tarsus dark brown. Ovipositor sheath blackish brown.

Lengths: Body 1.9 mm, antenna 1.7 mm, forewing 2.1 mm, ovipositor sheath 0.75 mm.

Male: Unknown.

Holotype: ♀, Sungkang, X.1985 (KSL). Paratypes: Anmashan, 1♀, 6-9.VII.1979 (LYC). Meifeng, 2♀, 15.VII.1982 (SCL & CNL); 1♀, 15.VII.1982 (SCL & CNL); 1♀, 4-7.X.1982 (KCC); Sungkang, 1♀, 13-15.IX.1984 (KSL & SCL).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Triaspis* species by the following combination of characters: vein 1/R1 of forewing almost as long as stigmal length, frons glabrous mediodorsally, clypeus not sharply pointed medially, apical rim of carapace strongly emarginate, ovipositor sheath slightly longer than metasoma length, and the metacoxa black.

Etymology: The specific name is Chinese noun "beitun" (dorsal shield). It refers to the shape of metasoma.

Triaspis (*Schizoprymnus*) *bicolor* sp. n.

(Figs. 18, 39, 63, 89, 117, 141, 167, 196, 227, 245)

Female: Head: 1.8 times as wide as long and 1.2 times wider than mesonotum. Eye 1.2 times as long as temple. Temple rather densely punctate. Frons rugose-reticulate; without large lamellate frontal carina. POL: OD: OOL=1: 0.70: 1.9. Vertex rugose-reticulate between ocelli and eye, rather densely punctate posterad ocelli. Face 0.49 times as high as wide and 1.4 times as wide as eye height and 0.63 times as wide as head, rugose; clypeus largely rugose, rather smooth ventrally, convex apically, not sharply pointed medially. Tentorial index 0.83. Malar space 0.73 times basal width of mandible. Antenna 36-segmented; F1 1.0 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.5, 3.5 and 1.5 times their width, respectively.

Mesosoma: 1.5 times as long as high. Pronotal side medially and reticulate, dorsoposteriorly foveate, rest largely smooth. Notauli deep and crenulate; mesoscutum rather densely punctate, middle lobe foveate posteriorly; scutellum puncticulate. Subalar fossa densely punctate, with carinae posteriorly; precoxal sulcus crenulate; disc of mesopleuron rather densely punctate. Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with median longitudinal carina and transverse carina, with wide medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.6 times as long as wide; 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.3 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 8.0: 2.8; m-cu: 2/Rs+M=1.1: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.26: 1. Hindwing: r-m: 1/M=0.67: 1; 1/M: Cu&cu-a=1.7: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 3.7, 8.3 and 5.3 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.47 and 0.41 times as long as basitarsus, respectively.

Metasoma: 1.6 times as long as wide; rugose-reticulate; apically not incurved. T1 0.66 times as long as wide apically; dorsal carinae disinct in basal 0.8; T2+T3 1.0 times as long as wide. Apical rim of carapace strongly emarginated. Ovipositor sheath 0.65 times as long as forewing.

Color: Black; palpi blackish brown, pronotum, mesonotum, anterodorsal area of mesopleuron and tegula reddish borwn. Antenna blackish brown. Wings hyaline, stigma and veins dark brown. Legs blackish brown. Ovipositor sheath blackish brown.

Lengths: Body 4.3 mm, antenna 4.3 mm, forewing 4.2 mm, ovipositor sheath 2.8 mm.

Male: Unknown.

Holotype: ♀, Meifeng, XII.1984 (KSL & KCC). Paratypes: Sungkang, 1♀, X.1984 (KSL & KCC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *Schizoprymnus commotus* Papp, 1989, but differs from it by the shape of carapace in lateral view.

Etymology: The specific name refers to its body with black and reddish brown coloration.

Triaspis (*Schizoprymnus*) *borpian* sp. n.

(Figs. 17, 40, 64, 90, 118, 142, 181, 206, 223, 246)

Female: Head: 1.6 times as wide as long and 1.3 times wider than mesonotum. Eye 1.0 times as long as temple. Temple punctulate. POL: OD: OOL=1: 0.56: 2.0. Frons rugulose-reticulate laterally; with large lamellate frontal carina; frontal depression rugulose-rugose. Vertex rugulose-reticulate around ocelli. Face 0.47 times as high as wide and 1.5 times as wide as eye height and 0.63 times as wide as head, rugulose; clypeus faintly rugulose, convex apically, not sharply pointed medially. Tentorial index 1.3. Malar space 1.5 times basal width of mandible. Antenna 25-26-segmented; F1 0.94 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.3, 3.4 and 1.1 times their width, respectively.

Mesosoma: 1.6 times as long as high. Pronotal side rugose-reticulate ventrally, punctulate dorsally. Notauli deep and crenulate; middle lobe of mesoscutum faintly rugulose, sculptures along notauli rather stronger; lateral lobes of mesoscutum puctulate; scutellum faintly rugulose. Subalar fossa crenulate to rugose; precoxal sulcus rugose-reticulate; disc of mesopleuron faintly rugulose to rugose. Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with median longitudinal carina, without transverse carina and medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.8 times as long as wide; 1/R1 shorter than stigmal length; basal posterior section of stigma 1.5 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 6.6: 2.3; m-cu: 2/Rs+M=1.3: 1; lcu-a intertial. Hindwing: r-m: 1/M=0.50: 1; 1/M: Cu&cu-a=1.7: 1.

Hind leg: Coxa rugulose dorsobasally. Lengths of femur, tibia and basitarsus 4.8, 9.3 and 7.0 times their width, respectively; tibia 1.5 times as long as femur; inner and outer spurs of tibia 0.29 and 0.24 times as long as basitarsus, respectively.

Metasoma: 2.1 times as long as wide; rugose-reticulate; apicoventrally distinctly incurved. T1 0.73 times as long as wide apically; dorsal carinae rather disinct in basal 0.3; T2+T3 1.4 times as long as wide. Apical rim of carapace semicircularly emarginated. Ovipositor sheath 0.23 times as long as forewing.

Color: Black; palpi brown, tegula dark brown. Antenna dark brown. Wings hyaline, stigma and veins dark brown. Legs brown. Ovipositor sheath blackish brown.

Lengths: Body 3.6 mm, antenna 3.0 mm, forewing 3.1 mm, ovipositor sheath 0.73 mm.

Male: Unknown.

Holotype: ♀, Tsuifeng, 23-25.VI.1983 (KSL & SCL). Paratypoes: Tsuifeng, 2♀, 23-25. VI.1983 (KSL & SCL); 2♀, 5.VIII.1984 (KSL); Tungpu, 1♀, 23-27. VII. 1984 (KCC & CHY).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *T. lienhuachihensis* sp. n., but differs from it by the frons rugulose-reticulate laterally and the clypeus convex apically.

Etymology: The specific name is Chinese noun "borpian" (lamella). It refers to the frons with a lamella medially.

Triaspis (Schizoprymnus) calvus sp. n.

(Figs. 29, 65, 91, 119, 143, 180, 208, 219, 247)

Female: Head: 1.7 times as wide as long and 1.3 times wider than mesonotum. Eye 0.97 times as long as temple. Temple, frons (except medially glabrous) and vertex punctulate; without large lamellate frontal carina. POL: OD: OOL=1: 0.59: 1.6. Face 0.58 times as high as wide and 1.2 times as wide as eye height and 0.56 times as wide as head; densely punctate; clypeus sparsely punctate, almost straight apically, not sharply pointed medially. Tentorial index 0.39. Malar space 0.64 times basal width of mandible. Antenna 27-28-segmented; F1 0.94 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.3, 3.6 and 1.4 times their width, respectively.

Mesosoma: 1.5 times as long as high. Pronotal trough crenulate anteriorly, collar rugulose-reticulate, rest of pronotal side largely smooth. Notauli deep and crenulate; mesonotum densely punctulate. Subalar fossa largely smooth with some punctures; precoxal sulcus glabrate; disc of mesopleuron puncticulate. Metapleuron largely puncticulate, rugulose-rugose ventrally. Propodeum punctulate anteriorly, rather rugose-reticulate posteriorly; with median longitudinal carina anteriorly and transverse carina; with narrow medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.8 times as long as wide; 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.1 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 8.1: 2.6; m-cu: 2/Rs+M=1.9: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.10: 1. Hindwing: r-m: 1/M=0.47: 1; 1/M: Cu&cu-a=2.3: 1.

Hind leg: Coxa with rugulae dorsobasally. Lengths of femur, tibia and basitarsus 4.6, 8.0 and 5.0 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.48 and 0.40 times as long as basitarsus, respectively.

Metasoma: 1.6 times as long as wide; apically not incurved. T1 0.73 times as long as wide apically, costate, basally rather smooth between dorsal carinae; dorsal carinae distinct basally; T2+T3 1.0 times as long as wide. T2 costate; T3 smooth. Apical rim of carapace moderately emarginated. Ovipositor sheath 0.19 times as long as forewing.

Color: Black; palpi and tegula yellow. Antenna blackish brown. Wings hyaline, stigma dark brown, veins yellow. Legs yellow, telotarsi, hing tibia about apical half and tarsus dark brown. Ovipositor sheath dark brown.

Lengths: Body 2.9 mm, antenna 2.7 mm, forewing 3.1 mm, ovipositor sheath 0.58 mm.

Male: Unknown.

Holotype: ♀, Tsuifeng, XI.1985 (KSL). Paratype: Meifeng, 1♀, VIII.1984 (KSL & KCC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Triaspis* species by the precox-

al sulcus and metasomal tergum III smooth.

Etymology: *Calvus* means smooth in Latin, refers to T3 smooth.

Triaspis (*Schizoprymnus*) *chiu* sp. n.

(Figs. 42, 67, 93, 121, 145, 168, 192, 221, 249)

Female: Head: 1.9 times as wide as long and 1.2 times wider than mesonotum. Eye 1.2 times as long as temple. Temple, frons (except glabrous medially) and vertex punctulate; without large lamellate frontal carina. POL: OD: OOL=1: 0.62: 1.4. Face 0.58 times as high as wide and 1.2 times as wide as eye height and 0.58 times as wide as head; punctulate; clypeus puncticulate, concave apically, sharply pointed medially. Tentorial index 0.64. Malar space 1.0 times basal width of mandible. Antenna 19-segmented; F1 1.0 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.3, 3.3 and 1.3 times their width, respectively.

Mesosoma: 1.3 times as long as high. Pronotal side rugose-punctate posteriorly; collar rugulose-rugose ventrally; rest largely smooth. Notauli deep and crenulate; mesoscutum punctulate, middle lobe rugose-reticulate posteriorly, sculptures on lateral lobe sparser; scutellum puncticulate. Subalar fossa punctate with carina; precoxal sulcus rugose-punctate; disc of mesopleuron puncticulate. Metapleuron rather rugulose - reticulate. Propodeum rugose-reticulate; with median longitudinal carina anteriorly and short transverse carina, they meet to form sharp projection; without medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.5 times as long as wide; 1/R1 shorter than stigmal length; basal posterior section of stigma 1.0 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 8.0: 2.6; m-cu: 2/Rs+M=1.8: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.20: 1. Hindwing: r-m: 1/M=0.67: 1; 1/M: Cu&cu-a=1.5: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 3.6, 7.7 and 3.7 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.62 and 0.54 times as long as basitarsus, respectively.

Metasoma: 1.3 times as long as wide, costate-rugose, interspace strigate; apically not incurved. T1 0.48 times as long as wide apically, basally rather smooth between dorsal carinae; dorsal carinae distinct basally; T2+T3 0.83 times as long as wide. Apical rim of carapace semicircularly emarginated. Ovipositor sheath 0.49 times as long as forewing.

Color: Blackish brown; palpi yellow, tegula dark brown. Antenna dark brown, lighter basally. Wings hyaline, stigma dark brown, veins yellow. Legs brownish yellow, hind tibia and tarsus darker. Ovipositor sheath dark brown.

Lengths: Body 1.9 mm, antenna 1.6 mm, forewing 1.8 mm, ovipositor sheath 0.88 mm.

Male: Unknown.

Holotype: ♀, Tungpu, 25-29.IX.1980 (LYC & TL).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *T. hui* sp. n., but differs from it by the posterior

carapace do not distinctly higher than anterior part, metacoxa smooth basally, and the vein 1/R1 of forewing shorter than stigmal length.

Etymology: The specific name is the Chinese noun "chiu" (ball). It refers to the shape of metasoma.

Triaspis (*Schizoprymnus*) *chouwen* sp. n.

(Figs. 23, 43, 68, 94, 122, 146, 169, 193, 220, 250)

Female: Head: 1.8 times as wide as long and 1.1 times wider than mesonotum. Eye 1.7 times as long as temple. Temple punctulate; frons rugulose medially, punctulate laterally; without large lamellate frontal carina. POL: OD : OOL=1: 0.50: 1.1. Vertex punctulate, rugulose around anterior ocellus. Face 0.44 times as high as wide and 1.2 times as wide as eye height and 0.62 times as wide as head; densely punctate, rugulose dorsally; clypeus sparsely punctate, almost straight, not sharply pointed medially. Tentorial index 0.61. Malar space 0.80 times basal width of mandible. Antenna 20-segmented; F1 0.92 times as long as F2; lengths of F1, F2 and penultimate flagellomere 2.7, 2.7 and 1.1 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side smooth dorsally; medially crenulate; posteriorly and ventrally rather rugulose. Notauli deep and crenulate; mesoscutum densely punctate, middle lobe rugulose posteriorly, punctures on lateral lobe sparser; scutellum puncticulate. Subalar fossa and precoxal sulcus rugose-reticulate; disc of mesopleuron rugose-reticulate dorsally, puncticulate ventrally. Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with median longitudinal carina anteriorly and short transverse carina, without medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.8 times as long as wide; 1/R1 longer than stigmal length; basal posterior section of stigma 1.2 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 6.9: 2.2; m-cu: 2/Rs+M=1.9: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.20: 1. Hindwing: r-m: 1/M=0.65: 1; 1/M: Cu&cu-a=1.3: 1.

Hind leg: Coxa rugose dorsobasally. Lengths of femur, tibia and basitarsus 3.8, 8.0 and 4.5 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.56 and 0.50 times as long as basitarsus, respectively.

Metasoma: 1.3 times as long as wide; rugose-reticulate; apically not incurved. T1 0.50 times as long as wide apically; dorsal carinae disinct in basal 0.4; T2+T3 0.83 times as long as wide. Apical rim of carapace deeply emarginated; rim of carapace behind weakly denticulate. Ovipositor sheath 0.58 times as long as forewing.

Color: Black; palpi yellow, tegula dark brown. Antenna dark brown, basally yellowish brown. Wings hyaline, stigma dark brown, veins yellow. Legs yellowish brown. Ovipositor sheath dark brown.

Lengths: Body 2.5 mm, antenna 1.8 mm, forewing 2.5 mm, ovipositor sheath 1.4 mm.

Male: Unknown.

Holotype: ♀, Kukuan, 14-17.X.1980 (KSL & CHW).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from other Taiwanese *Triaspis* by the rim of carapace behind weakly denticulate.

Etymology: The specific is the Chinese noun "chouwen" (wrinkle). It refers to the propodeum rugose-reticulate.

Triaspis (*Schizoprymnus*) *chunji* sp. n.

(Figs. 30, 44, 69, 95, 123, 147, 170, 204, 230, 251)

Female: Head: 1.7 times as wide as long and 1.1 times wider than mesonotum. Eye 1.1 times as long as temple. Temple, frons and vertex punctulate; frons largely glabrate medially, with carinae near toruli; without large lamellate frontal carina. POL: OD: OOL =1: 0.75: 2.0. Face 0.53 times as high as wide and 1.1 times as wide as eye height and 0.57 times as wide as head; densely punctate; clypeus punctate dorsally, rugose ventrally, almost straight apically, not sharply pointed medially. Tentorial index 0.75. Malar space 0.86 times basal width of mandible. Antenna 21-22-segmented; F1 0.89 times as long as F2; lengths of F1, F2 and penultimate flagellomere 2.4, 2.7 and 1.0 times their width, respectively.

Mesosoma: 1.3 times as long as high. Pronotal side medially crenulate-punctate; posteriorly foveate; anteroventrally rugose-punctate; rest smooth. Notauli deep and crenulate; mesoscutum punctulate, middle lobe rugose-reticulate posteriorly; scutellum puncticulate. Subalar fossa and precoxal sulcus rugose-reticulate; disc of mesopleuron puncticulate. Metapleuron largely rugose-reticulate, rather smooth dorsally. Propodeum rugose-reticulate, anteriorly rather smooth; with median longitudinal carina anteriorly and transverse carina, with wide medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.6 times as long as wide; 1/R1 longer than stigmal length; basal posterior section of stigma 1.2 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 9.3: 3.0; m-cu: 2/Rs+M=1.5: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.18: 1. Hindwing: r-m: 1/M=0.67: 1; 1/M: Cu&cu-a=1.9: 1.

Hind leg: Coxa rugose dorsobasally. Lengths of femur, tibia and basitarsus 3.7, 7.5 and 6.0 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.43 and 0.40 times as long as basitarsus, respectively.

Metasoma: 1.6 times as long as wide; costate-rugose; apically not incurved. T1 0.56 times as long as wide apically; basally rugose-reticulate between dorsal carinae; dorsal carinae distinct anteriorly; T2+T3 1.1 times as long as wide. Apical rim of carapace strongly emarginated. Ovipositor sheath 0.27 times as long as forewing.

Color: Black; palpi yellow, tegula dark brown. Antenna blackish brown. Wings hyaline, stigma and veins dark brown. Legs brownish yellow; hind tibia apically and tarsus dark brown. Ovipositor sheath blackish brown.

Lengths: Body 3.5 mm, antenna 4.9 mm, forewing 3.6 mm, ovipositor sheath 0.98 mm.

Male: Unknown.

Holotype: ♀, Meifeng, V.1984 (KSL & KCC). Paratypes: Meifeng, 1♀, 24-26.VI.1981 (KSL & WST); 1♀, VIII.1984 (KSL & KCC). Tsuifeng, 1♀, VI.1984 (KSL & KCC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *T. curvatus* sp. n., but differs from it by the clypeus distinctly rugose ventrally and almost straight apically, and the precoxal sulcus rugose-reticulate.

Etymology: The specific name is the Chinese noun "chunji" (clypeus). It refers to the clypeus punctate dorsally, rugose ventrally.

Triaspis (Schizoprymnus) curvatus sp. n.

(Figs. 32, 45, 70, 96, 124, 148, 186, 212, 236, 252)

Female: Head: 1.7 times as wide as long and 1.2 times wider than mesonotum. Eye 1.9 times as long as temple. Temple, frons and vertex punctulate; frons largely glabrate medially, with some carinae medioventrally; without large lamellate frontal carina. POL: OD: OOL=1: 0.71: 1.5. Face 0.53 times as high as wide and 1.2 times as wide as eye height and 0.59 times as wide as head; densely punctate; clypeus densely punctate dorsally, sparsely punctate ventrally, concave apically, not sharply pointed medially. Tentorial index 0.85. Malar space 0.75 times basal width of mandible. Antenna 23-25-segmented; F1 0.94 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.2, 3.4 and 1.0 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side largely foveate-reticulate, smooth dorsally, Notauli deep and crenulate; mesoscutum punctulate, scutellum puncticulate. Subalar fossa and precoxal sulcus foveate; disc of mesopleuron foveate dorsally, rest puncticulate. Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with median longitudinal carina anteriorly and short transverse carina, without medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.7 times as long as wide; 1/R1 longer than stigmal length; basal posterior section of stigma 1.2 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 8.1: 2.5; m-cu: 2/Rs+M=2.0: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.25: 1. Hindwing: r-m: 1/M=0.74: 1; 1/M: Cu&cu-a=1.6: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 3.8, 7.6 and 5.6 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.43 and 0.36 times as long as basitarsus, respectively.

Metasoma: 1.6 times as long as wide; costate-rugose, interspace strigate; apicoventrally slightly incurved. T1 0.54 times as long as wide apically, basally rugose-reticulate between dorsal carinae; dorsal carinae distinct anteriorly; T2+T3 1.1 times as long as wide. Apical rim of carapace moderately emarginated. Ovipositor sheath 0.39 times as long as forewing.

Color: Blackish brown; palpi yellow, tegula dark brown. Antenna dark brown, basally brownish yellow. Wings hyaline, stigma and veins dark brown. Legs brownish yellow; hind tibia (except base) dark brown. Ovipositor sheath dark brown.

Lengths: Body 2.7 mm, antenna 2.3 mm, forewing 2.6 mm, ovipositor sheath 1.0 mm.

Male: Unknown.

Holotype: ♀, Lienhuachih, V.1984 (KSL & KCC). Paratypes: Lienhuachih, 1♀, IV, & 4♀, V.1984 (KSL & KCC). Wanfeng, 2♀, IV.1984 (KSL & KCC).

Distribution: Taiwan.

Host: Unknown.

Remarks: The species is close to *T. chunji* sp. n., but differs from it by the clypeus sparsely punctate ventrally and cuncave apically, and the precoxal sulcus foveate.

Etymology: *Curvatus* means curved in Latin, refers to its clypeus concave medially.

Triaspis (Schizoprymnus) distinctus sp. n.

(Figs. 19, 46, 71, 97, 125, 149, 171, 197, 228, 253)

Female: Head: 1.7 times as wide as long and 1.3 times wider than mesonotum. Eye 1.2 times as long as temple. Temple, frons (medially glabrous) and vertex puncticulate; without large lanellate frontal carina. POL: OD: OOL=1: 0.60: 1.5. Face 0.55 times as high as wide and 1.2 times as wide as eye height and 0.60 times as wide as head, densely punctate; clypeus puncticulate dorsally, densely punctate ventrally, almost straight apically, not sharply pointed medially. Tentorial index 0.54. Malar space 0.67 times basal width of mandible. Antenna 23-25-segmented; F1 0.93 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.5, 3.8 and 1.3 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side largely smooth, pronotal trough crenulate anteriorly, collar rugulose anteriorly. Notauli deep and crenulate; mesoscutum punctulate, scutellum puncticulate. Subalar fossa punctate with carinae; precoxal sulcus strigate; disc of mesopleuron puncticulate. Metapleuron smooth dordally, rugulose-rugose ventrally. Propodeum smooth anteriorly, posteriorly smooth to foveate with rugae; with median longitudinal carina and transverse carina, with wide medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.6 times as long as wide; 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.1 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 7.4: 2.1; m-cu: 2/Rs+M=1.6: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.20: 1. Hindwing: r-m: 1/M=0.43: 1; 1/M: Cu&cu-a=2.3: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 4.5, 7.3 and 6.7 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.45 and 0.40 times as long as basitarsus, respectively.

Metasoma: 1.5 times as long as wide; rugose-costate; apically not incurved. T1 0.57 times as long as wide apically; basally rugose-reticulate between dorsal carinae; dorsal carinae disinct anteriorly; T2+T3 1.1 times as long as wide; T3 smooth apically. Apical rim of carapace moderately emarginated. Ovipositor sheath 0.33 times as long as forewing.

Color: Blackish brown; palpi and tegula brownish yellow. Antenna dark brown, basally lighter. Wings hyaline, stigma and veins brown. Legs brownish yellow; hind tibia (except base) dark brown. Ovipositor sheath dark brown.

Lengths: Body 2.4 mm, antenna 2.2 mm, forewing 2.4 mm, ovipositor sheath 0.78 mm.

Male: Similar to female.

Holotype: ♀, Tsuifeng, 12-14.IX.1984 (KSL & SCL). Paratypes: Hoshe, 1 ♀, 22.VII. 1982 (LYC & KCC). Meifeng, 1♀, 4-7.X.1982 (KCC); 1♀, V, & 1♀, VI.1984 (KSL & KCC). Tayuling, 1♀, 12-15.IX.1980 (KSL & CHW); 3♀, 6-9.IX.1983 (LYC & KCC). Tsuifeng, 22♀, 1-3.VIII.1981 (TL & WST); 24♀, 1-3.IX.1982 (LYC & KCC); 2♀, 23-25.VI.1983 (KSL & SCL); 8♀, 5.VIII.1984 (KSL); 3♀, 15-16.VIII.1984 (KCC); 38♀, 12-14.IX.1984 (KSL & SCL). Tungpu, 1♀, 25-29.IX.1980 (LYC & TL); 1♀, 5-6.X.1981 (TL & WST); 1♀, 18-21.X.1982 (KCC & SCL); 1♀, 13-16.XII.1982 (KCC & CCP); 1♀, 20-24.VI.1983 (KCC & CYW); 6 ♀, X.1985 (KSL); 2♀, XI.1985 (KSL). Wuling, 2♀, 27-29.VI.1979 (KSL & LYC).Wushe, 6♀1 ♂, V.1983 (HT) (in AEI).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *Schizoprymnus ungularis* Belokobylskij, 1994, but differs from it by the temple in dorsal view rather constricted, and the anterior shape of carapace in dorsal view.

Triaspis (Schizoprymnus) fessus sp. n.

(Figs. 24, 47, 72, 98, 126, 150, 176, 203, 231, 254)

Female: Head: 1.6 times as wide as long and 1.1 times wider than mesonotum. Eye 1.2 times as long as temple. Temple, frons (medially glabrous) and vertex puncticulate; without large lamellate frontal carina. POL: OD: OOL=1: 0.83: 2.1. Face 0.59 times as high as wide and 1.0 times as wide as eye height and 0.57 times as wide as head; punctulate; clypeus rugulose-punctate, weakly convex apically, not sharply pointed medially. Tentorial index 0.64. Malar space 0.75 times basal width of mandible. Antenna 24-segmented; F1 0.88 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.5, 4.0 and 1.3 times their width, respectively.

Mesosoma: 1.5 times as long as high. Pronotal side rugulose dorsoposteriory, pronotal trough crenulate; collar rugulose-reticulate anteriorly, rest of pronotal side largely smooth. Notauli deep and crenulate; mesoscutum punctulate, middle lobe reticulate-rugose posteriorly; scutellum puncticulate. Subalar fossa foveate with rugae; precoxal sulcus crenulate; disc of mesopleuron puncticulate. Metapleuron punctulate dorsally, rugose-reticulate ventrally. Propodeum rugose-reticulate; with median longitudinal carina anteriorly, transverse carina and medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.6 times as long as wide; 1/R1 longer than stigmal length; basal posterior section of stigma; 1.1 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 10.0: 2.9; m-cu: 2/Rs+M=1.8: 1; 1cu-a postfurcal, 1/Cu: 2/Cu=0.22: 1. Hindwing: r-m: 1/M=0.43: 1; 1/M: Cu&cu-a=1.9: 1.

Hind leg: Coxa rugulose dorsobasally. Lengths of femur, tibia and basitarsus 4.0, 8.9

and 6.7 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.48 and 0.38 times as long as basitarsus, respectively.

Metasoma: 1.6 times as long as wide; costate-rugose, interspace strigulate; apically not incurved. T1 0.72 times as long as wide apically; basally rugulose between dorsal carina; dorsal carinae distinct anteriorly; T2+T3 1.0 times as long as wide. Apical rim of carapace weakly emarginated. Ovipositor sheath 0.28 times as long as forewing.

Color: Dark brown; palpi yellow. Antenna dark brown, basal segments lighter. Wings hyaline, stigma dark brown, veins yellow. Legs brownish yellow; hind tibia posteriorly and tarsus more or less darker. Ovipositor sheath blackish brown.

Lengths: Body 2.5 mm, antenna 2.3 mm, forewing 2.5 mm, ovipositor sheath 0.70 mm.

Male: Unknown.

Holotype: ♀, Tungpu, 23-27.VII.1984 (KCC & CHY).

Distribution: Tawian.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Triaspis* species by the following combination of characters: vein 1/R1 of forewing distinctly longer that stigmal length; metasoma in dorsal view constricted posteriorly; ovipositor sheath distinctly shorter than carapace.

Etymology: *Fessus* means feeble in Latin, refers to its vein 3+4/Rs of forewing weakly curved.

Triaspis (Schizoprymnus) hui sp. n.

(Figs. 15, 48, 73, 99, 127, 151, 172, 194, 222, 255)

Female: Head: 1.9 times as wide as long and 0.97 times wider than mesonotum. Eye 1.2 times as long as temple. Temple and vertex puncticulate; frons punctulate laterally, strigate medioventrally, smooth mediodorsally; without large lamellate frontal carina. POL: OD: OOL=1 : 0.61 : 1.4. Face 0.53 times as high as wide and 1.2 times as wide as eye height and 0.59 times as wide as head; densely punctate, with some rugosity mediodorsally, clypeus densely punctate, concave apically, with sharply pointed medially. Tentorial index 0.73. Malar space 0.91 times basal width of mandible. Antenna 23-segmented; F1 0.82 times as long as F2; lengths of F1, F2 and penultimate flagellomere 2.8, 3.4 and 1.5 times their width, respectively.

Mesosoma: 1.3 times as long as high. Pronotal side crenulate medially, rugose-reticulate dorsoposteriorly, collar largely rugulose-punctate, rest of pronotal side smooth. Notauli deep and crenulate, mesoscutum punctulate, middle lobe rugose-reticulate posteriorly, scutellum puncticulate. Subalar fossa foveate with carinae; precoxal sulcus rugose-reticulate; disc of mesopleuron sparsely punctate. Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with median longitudinal carina and short transverse carina, they meet to form sharp projection; without distinct medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.5 times as long as wide; 1/R1 almost as long as stigmal

length; basal posterior section of stigma 1.2 temes apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1 : 7.6 : 2.2; m-cu: 2/Rs+M=1.2: 1; 1cu-a postfurcal, 1/Cu: 2/Cu=0.27: 1. Hindwing: r-m: 1/M=0.56: 1; 1/M: Cu&cu-a=1.9: 1.

Hind leg: Coxa rugulose dorsobasally. Lengths of femur, tibia and basitarsus 3.8, 7.6 and 4.4 times their width, respectively, tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.55 and 0.50 times as long as basitarsus, respectively.

Metasoma: 1.3 times as long as wide, rugose-reticulate; apically not incurved. T1 0.58 times as long as wide apically; dorsal carinae distinct basally, T2+T3 0.92 times as long as wide. Apical rim of carapace strongly emarginated. Ovipositor sheath 0.41 times as long as forewing.

Color: Black; palpi yellow, tegula dark brown. Antenna blackish brown, basally brown. Wings hyaline, stigma and veins dark brown. Legs yellowish brown, telotarsi, hind tibia apically and tarsus dark brown. Ovipositor sheath dark brown.

Lengths: Body 2.6 mm, antenna 2.1 mm, forewing 2.9 mm, ovipositor sheath 1.2 mm.

Male: Unknown.

Holotype: ♀, Lushan, 27-31.V.1980 (KSL & LYC). Paratype: 1♀, same date as holotype.

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *T. chiu* sp. n., but differs from it by the posterior carapace is distinctly higher than anterior part, metacoxa rugulose basally, and the vein 1/R1 of forewing almost as long as stigmal length.

Etymology: The specific name is the Chinese noun "hui" (beak). It refers to the projection of propodeum.

Triaspis (Schizoprymnus) imitatus Papp

(Figs. 14, 41, 66, 92, 120, 144, 182, 207, 224, 248)

Schizoprymmus (*Schizoprymmnus*) *imitatus* Papp, 1993. Acta Zool. Hung. 39 : 145.

Female: Head: 1.7 times as wide as long and 1.4 times wider than mesonotum. Eye 1.4 times as long as temple. Temple, frons and vertex rather densely punctulate; without large lamellate frontal carina. POL: OD: OOL=1 : 0.60 : 1.7. Face 0.48 times as high as wide and 1.4 times as wide as eye height and 0.59 times as wide as head, densely punctate; clypeus densely punctate, almost straight to weakly concave apically, with or without faintly pointed medially. Tentorial index 1.2. Malar space 0.94 times basal width of mandible. Antenna 25-27-segmented; F1 0.95 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.3, 3.2 and 1.3 times their width, respectively.

Mesosoma: 1.5 times as long as high. Pronotal side foveate-reticulate medially and dorsoposteriorly, collar largely rugose-reticulate to rugulose-punctate, rest of pronotal side smooth. Notauli deep and crenulate; mesonotum punctulate, middle of mesoscutum foveate. Subalar fossa and precoxal sulcus foveate; disc of mesopleuron sparsely punctate.

Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with median longitudinal carina and transverse carina, without medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 3.1 times as long as wide; 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.5 times apical posterior section of stigma; r-rs: 3 +4/Rs: 2/Rs=1 : 7.6 : 3.0; m-cu: 2/Rs+M=2.3: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.16: 1. Hindwing: r-m: 1/M=0.45: 1; 1/M: Cu&cu-a=1.8: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 4.4, 9.5 and 6.3 times their width, respectively; tibia 1.5 times as long as femur; inner and outer spurs of tibia 0.37 and 0.32 times as long as basitarsus, respectively.

Metasoma: 2.1 times as long as wide, rugose-reticulate; apicoventrally distinctly incurved. T1 0.80 times as long as wide apically; dorsal carinae distinct basally; T2+T3 1.3 times as long as wide. Apical rim of carapace semicircularly emarginated. Ovipositor sheath 0.19 times as long as forewing.

Color: Black; palpi yellow, tegula brownish yellow. Antenna dark brown, scape and pedicel lighter. Wings hyaline, stigma dark brown, veins brownish yellow. Legs yellow, hind tibia apically and tarsus largely dark brown. Ovipositor sheath dark brown.

Lengths: Body 3.8 mm, antenna 3.1 mm, forewing 3.5 mm, ovipositor sheath 0.68 mm.

Male: Similar to female. Antenna longer and slender.

Specimens examned: Lienhuachih, 1♀, V, 4♀, VIII, & 19♀, IX.1984 (KSL & KCC). Lushan, 1♀, 27-31.V.1980 (KSL & LYC). Wushe, 1♀1♂, 29.V.1983 (HT) (in AEI).

Distribution: Taiwan.

Host: Unknown.

Triaspis (Schizoprymnus) ketiao sp. n.

(Figs. 25, 49, 74, 100, 128, 152, 177, 205, 233, 256)

Female: Head: 1.6 times as wide as long and 1.1 times wider than mesonotum. Eye 1.1 times as long as temple. Temple, frons and vertex punctulate; without large lamellate frontal carina. POL: OD: OOL=1 : 0.83 : 2.0. Face 0.62 times as high as wide and 1.0 times as wide as eye height and 0.55 times as wide as head; densely punctate, with rugae near toruli, clypeus punctulate, almost straight apically, not sharply pointed medially. Tentorial index 0.58. Malar space 1.0 times basal width of mandible. Antenna 16-18-segmented; F1 1.0 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.4, 3.3 and 1.0 times their width, respectively.

Mesonoma: 1.4 times as long as high. Pronotal side rather densely punctulate dorsally, medially and dorsoposteriorly rugulose-punctate; collar rugulose ventrally, rest of pronotal side smooth. Notauli deep and crenulate; mesoscutum punctulate; scutellum puncticulate. Subalar fossa more or less foveolate, with carinae; precoxal sulcus crenulate; disc of mesopleuron puncticulate. Metapleuron smooth dorsally, rugose-reticulate ventrally. Propodeum rugose-reticulate; with median longitudinal carina anteriorly and short transverse carina, they meet to form weak projection; with ill defined medioposterior area; lateral

propodeal tubercles distinct.

Wings: Forewing: stigma 2.6 times as long as wide, 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.2 times apical posterior section of stigma; r-rs: 3 +4/Rs: 2/Rs=1 : 8.3: 2.3; m-cu: 2/Rs+M=1.6: 1; 1 cu-a postfurcal, 1/Cu: 2/Cu=0.14: 1. Hindwing: r-m: 1/M=0.38: 1; 1/M: Cu&cu-a=2.2: 1.

Hind leg: Coxa with rugulae dorsobasally. Lengths of femur, tibia and basitaarsus 3.7, 7.5 and 5.0 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.45 and 0.35 times as long as basitarsus, respectively,

Metasoma: 1.7 times as long as wide, costate; apically not incurved. T1 0.68 times as long as wide apically, basally rather smooth between dorsal carinae; dorsal carinae distinct anteriorly; T2+T3 1.1 times as long as wide; T3 smooth apically. Apical rim of carapace strongly emarginated. Ovipositor sheath 0.37 times as long as forewing.

Color: Black; palpi brownish yellow, tegula dark brown. Antenna blackish brown, scape and pedicel lighter. Wings hyaline, stigma dark brown, veins yellowish brown. Legs brownish yellow, telotarsi, hind tibia (except base) and tarsus darker. Ovipositor sheath blackish brown.

Lengths: Body 2.4 mm, antenna 1.6 mm, forewing 2.4 mm, ovipositor sheath 0.88 mm.

Male: Unknown.

Holotype: ♀, Meifeng, XI.1985 (KSL). Paratypes: Alishan, 1♀, 17-20.VIII.1982 (KCC & CCP). Meifeng, 1♀, 2-4.VI.1980 (LYC & CCC); 1♀, 22-26.VI.1983 (KSL & SCL); 1♀, 8-11. V.1984 (KCC & CCP); 1♀, IX.1984 (KSL & KCC); 1♀, XI.1985 (KSL). Sungkang, 1♀, X. 1984 (KSL & KCC); 1♀, XI.1985 (KSL). Tsuifeng, 2♀, X.1984 (KSL & KCC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Triaspis* species by the following combination of characters: vein 1/R1 of forewing almost as long as stigmal length, carinae on T1+T2 more straight and parallel; antenna 16-18-segmented; and metasoma 1.7 times as long as wide.

Etymology: The specific name is the Chinese noun "ketiao" (costate). It refers to the sculptures of carapace.

Triaspis (Schizoprymnus) kueichia sp. n.

(Figs. 20, 50, 75, 101, 129, 153, 173, 199, 234, 257)

Female: Head: 1.8 times as wide as long and 1.1 times wider than mesonotum. Eye 1.3 times as long as temple. Temple punctulate; frons rather densely punctulate, punctate-rugose medially; without large lamellate frontal carina. POL: OD: OOL=1 : 0.63 : 1.6. Face 0.57 times as high as wide and 1.1 times as wide as eye height and 0.58 times as wide as head; densely punctate, with rugae near toruli; clypeus punctate, almost straight apically, not sharply pointed medially. Tentorial index 0.53. Malar space 0.80 times basal width of mandible. Antenna 23-25-segmented; F1 0.94 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.0, 3.2 and 1.3 times their width, respectively.

Mesosoma: 1.3 times as long as high. Pronotal trough crenulate, collar more or less rugulose-reticulate, rest of pronotal side largely smooth. Notauli deep and crenulate; mesoscutum punctulate, scutellum puncticulate. Subalar fossa largely smooth, with carinae; precoxal sulcus rugulose-punctate; disc of mesopleuron puncticulate. Metapleuron puncticulate dorsally, rugose-reticulate ventrally. Propodeum punctulate anteriorly, posteriorly smooth, and densely punctate along carinae; with median longitudinal carina anteriorly and short transverse carina, with ill defined medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing stigma 2.4 times as long as wide; 1/R1 longer than stigmal length; basal posterior section of stigma 1.1 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1 : 7.1 : 2.0; m-cu: 2/Rs+M=1.4: 1 ; 1cu-a postfurcal, 1/Cu: 2/Cu=0.14: 1. Hindwing: r-m: 1/M=0.58: 1; 1/M : Cu&cu-a=1.6: 1.

Hind leg: Coxa rugose dorsobasally. Lengths of femur, tibia and basitarsus 3.4, 6.9 and 5.6 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.36 and 0.32 times as long as basitarsus, respectively.

Metasoma: 1.2 times as long as wide; costate-rugose, interspace strigulate to strigate; apically not incurved. T1 0.55 times as long as wide apically; basally rather smooth between dorsal carinae; dorsal carinae distinct anteriorly; T2+T3 0.76 times as long as wide. Apical rim of carapace moderately emarginated. Ovipositor sheath 0.55 times as long as forewing.

Color: Black; palpi yellowish brown; tegula blackish brown. Antenna blackish brown. Wings hyaline, stigma and veins dark brown. Legs yellowish brown; hind tibia and tarsus dark brown. Ovipositor sheath blackish brown.

Lengths: Body 2.5 mm, antenna 2.5 mm, forewing 3.0 mm, ovipositor sheath 1.7 mm.

Male: Unknown.

Holotype: ♀, Meifeng, 5-9.X.1980 (CCC & CCCh). Paratypes: Meifeng, 1♀, same data as holotype. Sungkang, 1♀, X.1984 (KSL & KCC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *T. ovatus* sp. n., but differs from it by the ovipositor sheath 0.55 times as long as forewing length; the metasoma 1.2 times as long as wide and the antenna 17-20-segmented.

Etymology: The specific name is the Chinese noun "kueichia" (carapace). It refers to the shape of metasoma.

Triaspis (Schizoprymnus) lienhuachihensis sp. n.

(Figs. 26, 51, 76, 102, 130, 154, 183, 209, 218, 258)

Female: Head: 1.6 times as wide as long and 1.3 times wider than mesonotum. Eye 1.3 times as long as temple. Temple, frons and vertex punctulate; frons with some rugae near toruli, with large lamellate frontal carina. POL: OD: OOL=1 : 0.63 : 1.6. Face 0.45 times as high as wide and 1.2 times as wide as eye height and 0.59 times as wide as head; densely punctate, with some rugae dorsally; clypeus densely punctate, almost straight apically, not

sharply pointed medially. Tentorial index 0.75. Malar space 0.67 times basal width of mandible. Antenna 26-segmented; F1 1.0 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.5, 3.1 and 1.1 times their width, respectively.

Mesosoma: 1.5 times as long as high. Pronotal side punctulate dorsally, medially and posteriorly foveate, collar rugulose-punctate. Notauli deep and crenulate; mesonotum punctulate, middle lobe of mesoscutum foveolate posteriorly. Subalar fossa and precoxal sulcus foveate; disc of mesopleuron sparsely punctate. Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with median longitudinal carina anteriorly and transverse carina, without medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.8 times as long as wide; 1/R1 slightly shorter than stigmal length; basal posterior section of stigma 1.2 times apical posterior section of stigma; r-rs: 3 +4/Rs: 2/Rs=1 : 7.0 : 2.5; m-cu : 2/Rs+M=2.3: 1; 1cu-a postfurcal, 1/Cu: 2/Cu=0.18: 1. Hindwing: r-m: 1/M=0.52: 1; 1/M: Cu&cu-a=1.9: 1.

Hind leg: Coxa rugose dorsobasally. Lengths of femur, tibia and basitarsus 4.2, 8.8 and 6.5 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.34 and 0.31 times as long as basitarsus, respectively.

Metasoma: 1.9 times as long as wide; rugose-reticulate; apicoventrally distinctly incurved. T1 0.69 times as long as wide apically; dorsal carinae distinct basally; T2+T3 1.3 times as long as wide. Apical rim of carapace weakly emarginated. Ovipositor sheath 0.25 times as long as forewing.

Color: Blackish brown; palpi brownish yellow, tegula yellowish brown. Antenna dark brown, basally lighter. Wings hyaline, stigma dark brown, veins yellow. Legs brownish yellow; hind tibia apically dark brown. Ovipositor sheath blackish brown.

Lengths: Body 2.7 mm, antenna 2.4 mm, forewing 2.5 mm, ovipositor sheath 0.63 mm.

Male: Unknown.

Holotype: ♀, Lienhuachih, V.1984 (KSL & KCC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *T. borpian* sp, n., but differs from it by the frons punctulate laterally and the clypeus almost straight apically.

Etymology: The specific name is derived from the name of the type locality, Lienhuachih.

Triaspis (Schizoprymnus) loi sp. n.

(Figs. 27, 52, 77, 103, 131, 155, 184, 198, 225, 259)

Female: Head: 1.8 times as wide as long and 1.3 times wider than mesonotum, punctulate. Eye 1.2 times as long as temple. Frons rugulose-punctate medially, without large lamellate frontal carina. POL: OD: OOL=1 : 0.47 : 1.4. Face 0.41 times as high as wide and 1.5 times as wide as eye height and 0.66 times as wide as head; with some rugosity dorsomedially; clypeus almost straight apically, not sharply pointed medially. Tentorial index 1.2. Malar space 1.2 times basal width of mandible. Antenna 22-segmented; F1 0.93

times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.3, 3.1 and 1.3 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side punctulate dorsally, rest rugose-reticulate. Notauli deep and crenulate; mesoscutum punctulate, middle lobe rugose-reticulate, scutellum puncticulate. Subalar fossa foveate; precoxal sulcus reticulate-rugose; disc of mesopleuron puncticulate. Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with median longitudinal carina anteriorly and short transverse carina, without mediposterior area; lateral propodeal tubercles weakly developed.

Wings: Forewing: stigma 2.5 times as long as wide; 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.3 times apical posterior section of stigma; r-rs: 3+4/Rs : 2/Rs=1 : 6.9 : 2.4; m-cu : 2/Rs+M=1.2: 1; lcu-a postfurcal, 1/Cu: 2/Cu=0.16: 1. Hindwing: r-m: 1/M=0.50: 1; 1/M : Cu&cu-a=2.0: 1.

Hind leg: Coxa rugose dorsobasally. Lengths of femur, tibia and basitarsus 4.0, 8.5 and 6.3 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.40 and 0.36 times as long as basitarsus, respectively.

Metasoma: 1.8 times as long as wide, rugose-reticulate; apicoventrally weakly incurved. T1 0.58 times as long as wide apically; dorsal carinae distinct basally; T2+T3 1.2 times as long as wide. Apical rim of carapace semicircularly emarginated. Ovipositor sheath 0.46 times as long as forewing.

Color: Black; palpi and tegula blackish brown. Antenna blackish brown, basally lighter. Wings hyaline, stigma dark brown, veins yellowish brown. Legs dark brown. Ovipositor sheath blackish brown.

Lengths: Body 2.5 mm, antenna 2.0 mm, forewing 2.3 mm, ovipositor sheath 1.0 mm.

Male: Unknown.

Holotype: ♀, Wuling, 27-29.VI.1979 (KSL & LYC). Paratypes: 1♀, same date as holotype.

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Triaspis* species by the following combination of characters: vein 1/R1 of forewing almost as long as stigmal length, clylpeus not sharply pointed medially, tentorial index 1.2, and the metasoma elongate with apical rim semicircularly emarginate.

Etymology: Patronymic, named in honour of Mr. Kang-chen Lo.

Triaspis (Schizoprymnus) ovatus sp. n.

(Figs. 31, 53, 78, 104, 132, 156, 178, 211, 237, 260)

Female: Head: 1.7 times as wide as long and 1.1 times wider than mesonotum. Eye 1.2 times as long as temple. Temple, frons (glabrous medially) and vertex puncticulate; without large lamellate frontal carina. POL: OD: OOL=1 : 0.77 : 1.8. Face 0.66 times as high as wide and 1.0 times as wide as eye height and 0.53 times as wide as head; punctulate, with rugae near toruli; clypeus puncticulate, almost straight apically, not sharply pointed

medially. Tentorial index 0.69. Malar space 0.91 times basal width of mandible. Antenna 17-20-segmented; F1 0.94 times as long as F2; lengths of F1, F2 and penultimated flagellomere segment 3.2, 3.4 and 1.1 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side more or less rugulose dorsoposteriorly, pronotal trough crenulate, collar rugose anteroventrally, rest of pronotal side largely smooth. Notauli deep and crenulate; mesonotum punctulate. Subalar fossa smooth to foveolate; precoxal sulcus strigate; disc of mesopleuron puncticulate. Metapleuron puncticulate dorsally, rugose-reticulate ventrally. Propodeum foveate with rugae, except basally punctate; with median longitudinal carina and strongly developed transverse carina; with ill defined medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.9 times as long as wide; 1/R1 longer than stigmal length; basal posterior section of stigma 1.0 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 7.3: 2.4; m-cu: 2/Rs+M=2.5: 1; 1cu-a postfurcal, 1/Cu: 2/Cu=0.19: 1. Hindwing: r-m: 1/M=0.41: 1; 1/M: Cu&cu-a=2.1: 1.

Hind leg: Coxa with rugae dorsobasally. Lengths of femur, tibia and basitarsus 3.5, 8.6 and 6.7 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.37 and 0.33 times as long as basitarsus, respectively.

Metasoma: 1.5 timesas long as wide, rugose-costate, interspace strigate; apically not incurved. T1 0.66 times as long as wide apically; dorsal carinae distinct anteriorly; T2+T3 0.97 times as long as wide. Apical rim of carapace moderately emarginated. Ovipositor sheath 0.69 times as long as forewing.

Color: Black; palpi yellow, tegula dark brown. Antenna blackish brown, scape brownish yellow. Wings hyaline, stigma and veins dark brown. Legs brownish yellow, hind tibia apically and tarsus brown. Ovipositor sheath dark brown.

Lengths: Body 3.1 mm, antenna 2.0 mm, forewing 3.4 mm, ovipositor sheath 2.3 mm.

Male: Unknown.

Holotype: ♀, Tsuifeng VIII.1984 (KSL & KCC). Paratypes: Meifeng, 1♀, 28-29.VIII. 1981 (LYC & SCL). 1♀, VIII.1984 (KSL & KCC). Sungakng, 1♀, 6.VIII.1984 (KSL), 1♀, X. 1984 (KSL & KCC). Tsuifeng, 4♀, VIII.1984 (KSL & KCC); 1♀, 5.VIII.1984 (KSL); 1♀, IX, & 3♀, X.1984 (KSL & KCC); & 2♀, IX, 1 ♀, X, & 1♀, XI.1985 (KSL). Tungpu, 1♀, 25-29.IX.1980 (LYC & TL); 1♀, XII.1985 (KSL).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Triaspis* species by the following combination of characters: vein 1/R1 of forewing distinctly longer than stigmal length, ovipositor sheath 0.69 times as long as forewing length, metasoma 1.5 times as long as wide; antenna 17-20-segmented.

Etyology: *Ovatus* means egg-shaped in Latin, refers to its metasomal shape.

Triaspis (Schizoprymnus) plenus sp. n.

(Figs. 79, 105, 133 157, 185, 210, 238, 261)

Female: Head: 1.6 times as wide as long and 1.6 times wider than mesonotum. Eye 1.3 times as long as temple. Temple, frons and vertex puncticulate; without large lamellate frontal carina. POL: OD: OOL=1 : 0.60 : 1.8. Face 0.53 times as high as wide and 1.3 times as wide as eye height and 0.58 times as wide as head, punctulate; clypeus punctulate, almost straight apically, not sharply pointed medially. Tentorial index 1.0. Malar space 1.3 times basal width of mandible. Antenna 20-22-segmented; F1 1.0 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.7, 3.7 and 1.3 times their width, respectively.

Mesosoma: 1.6 times as long as high. Pronotal trough weakly crenulate, collar anteroventrally rugulose to rugulose-reticulate, rest of pronotal side largely smooth. Notauli deep and crenulate; mesonotum punctulate. Subalar fossa with carina; precoxal sulcus foveolate; disc of mesopleuron puncticulate. Metapleuron rugose-reticulate. Propodeum rugose-reticulate, rather smooth anteromedially; with median longitudinal carina and short transverse carina, without medioposterior area; lateral propodeal tubercles weakly developed.

Wings: Forewing: stigma 3.4 times as long as wide; 1/R1 shorter than stigmal length; basal posterior section of stigma 1.3 times apical posterior section of stigma; r-rs: 3+4/Rs: 2/Rs=1: 9.3: 2.7; m-cu: 2/Rs+M=1.5: 1; 1cu-a antefurcal. Hindwing: r-m: 1/M=0.43: 1; 1/M: Cu&cu-a=2.0: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 4.5, 10.0 and 7.0 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.23 and 0.19 times as long as basitarsus, respectively.

Metasoma: 1.9 times as long as wide, rugulose-costulate, rather smooth subspically; apicoventrally weakly incurved. T1 0.75 times as long as wide apically; dorsal carinae distinct basally; T2+T3 1.4 times as long as wide. Apical rim of carapace almost complete. Ovipositor sheath 0.27 times as long as forewing.

Color: Dark brown; palpi and tegula yellow. Antenna dark brown, basally lighter. Wings hyaline, stigma dark brown, veins yellow. Legs yellow, hind tibia apically and tarsus light brown. Ovipositor sheath dark brown.

Lengths: Body 2.0 mm, antenna 1.6 mm, forewing 1.8 mm, ovipositor sheath 0.48 mm.

Male: Unknown.

Holotype: ♀, Lienhuachih, IX.1984 (KSL & KCC). Paratype: Lanyu, 1♀, 4-9.V.1982 (KSL, KCC, SCL & CCP).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Triaspis* species by the following combination of characters: vein 1/R1 of forewing shorter than stigmal length, clypeus not sharpy pointed medially, metasoma elongate with apical rim almost without emarginate, and the ovipositor sheath about 0.3 times as long as forewing length.

Etymology: *Plenus* means full in Latin, refers to its carapace without distinct emargination.

Triaspis (Schizoprymnus) robustus sp. n.

(Figs. 21, 54, 80 106, 134, 158, 174, 200, 232, 262)

Female: Head: 1.7 times as wide as long and 1.1 times wider than mesonotum. Eye 1.0 times as long as temple. Temple and vertex puncticulate; frons punctulate laterally, strigate medioventrally, glabrous medioddorsally, without large lamellate frontal carina. POL: OD: OOL=1 : 0.50 : 1.4. Face 0.52 times as high as wide and 1.1 times as wide as eye height and 0.59 times as wide as head; punctulate, with rugae near toruli; clypeus puncticulate, almost straight apically, not sharply pointed medially. Tentorial index 0.50. Malar space 0.77 times basal width of mandible. Antenna 20-21-segmented; F1 1.1 times as long as F2; lengths of F1, F2 and penultimate flagellomere 2.6, 2.4 and 1.3 times their width, respectively.

Mesosoma: 1.3 times as long as high. Pronotal side rugulose dorsoposteriorly, pronotal trough crenulate, collar rugulose-punctate ventrally; rest of pronotal side smooth. Notauli deep and crenulate; mesoscutum punctulate, scutellum puncticulate. Subalar fossa foveate with carinae; precoxal sulcus crenulate-punctate; disc of mesopleuron puncticulate. Metapleuron puncticulate dorsally; rugose-reticulate ventrally. Propodeum punctulate anteriorly, rugose-reticulate posteriorly; with median longitudinal carina anteriorly and transverse carina, without distinct medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.2 times as long as wide; 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.0 times apical posterior section of stigma; r-rs: 3 +4/Rs: 2/Rs=1: 6.7: 2.0; m-cu: 2/Rs+M=1.6: 1; 1cu-a postfurcal, 1/Cu: 2/Cu=0.13: 1. Hindwing: r-m: 1/M=0.48: 1; 1/M: Cu&cu-a=1.9: 1.

Hind leg: Coxa rugulose dorsobasally. Lengths of femur, tibia and basitarsus 3.2, 6.7 and 4.0 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.63 and 0.50 times as long as basitarsus, respectively.

Metasoma: 1.3 times as long as wide; rugose-costate, interspace strigate; apically not incurved. T1 0.48 times as long as wide apically; basally rugose-reticulate between dorsal carina; dorsal carinae disinct anteriorly; T2+T3 0.86 times as long as wide; T3 smooth apically. Apical rim of carapace moderately emarginated. Ovipostor sheath 0.44 times as long as forewing.

Color: Black; palpi yellow, tegula dark brown. Antenna dark brown. Wings hyaline, stigma dark brown, veins yellow. Legs brownish yellow; metacoxa brownish or black dorsobasally, hind tibia (except base) and tarsus dark brown. Ovipositor sheath blackish brown.

Lengths: Body 2.2 mm, antenna 1.8 mm, forewing 2.4 mm, ovipositor sheath 1.1 mm.

Male: Unknown.

Holotype: ♀, Lienhuachih, III.1984 (KSL & KCC). Pasatype: Meifeng, 1♀, 3.V. 1983 (HT) (inAEI).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *T. tungpuensis* sp. n., but differs from it by the antenna with 20 segments, metasoma 1.3 times as long as wide, and the body black.

Etymology: *Robustus* means strong in Latin.

Triaspis (Schizoprymnus) shan sp. n.

(Figs. 16, 55, 81 107, 135, 159, 179, 202, 226, 263)

Female: Head: 1.7 times as wide as long and 1.2 times wider than mesonotum. Eye 0.90 times as long as temple. Temple and vertex puncticulate; frons punctulate laterally, strigate medioventrally, glabrate mediodorsally; without large lamellate frontal carina. POL: OD: OOL=1 : 0.75 : 2.0. Face 0.55 times as high as wide and 1.1 times as wide as eye height and 0.56 times as wide as head, densely punctate; clypeus densely punctate, distinctly concave apically, sharply pointed medially. Tentorial index 1.1. Malar space 0.69 times basal width of mandible. Antenna 24-28-segmented; F1 1.0 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.8, 3.8 and 1.3 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side crenulate medially, more or less foveate posteriorly, anteroventrally rugose-punctate, rest smooth. Notauli deep and crenulate; mesoscutum punctulate, middle lobe foveate posteriorly; scutellum puncticulate. Subalar fossa foveate, with carinae; precoxal sulcus foveate; disc of mesopleuron puncticulate. Metapleuron rugose-reticulate. Propodeum rugose-reticulate; with median longitudinal carina and transverse carina, they meet to form sharp projection; without medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing: stigma 2.6 times as long as wide; 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.2 times apical posterior section of stigmal; r-rs: 3+4/Rs: 2/Rs=1: 7.1: 2.7; m-cu: 2/Rs+M=1.8: 1; 1cu-a postfurcal, 1/Cu: 2/Cu=0.27: 1. Hindwing: r-m: 1/M=0.67: 1; 1/M: Cu&cu-a=1.7: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 3.8, 8.6 and 5.8 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.48 and 0.41 times as long as basitarsus, respectively.

Metasoma: 1.7 times as long as wide, rugose-reticulate; apicoventrally weakly incurved. T1 0.67 times as long as wide apically; dorsal carinae distinct anteriorly; T2+T3 1.1 times as long as wide. Apical rim of carapace semicircularly emarginated. Ovipositor sheath 0.34 times as long as forewing.

Color: Dark brown; palpi yellow, mesopleuron, metapleuron and propodeum lighter, metasoma brownish yellow, tegula brownish yellow. Antenna blackish brwon. Wings hyaline, stigma and veins dark brown. Legs yellow, hind tibia (except base) yellowish brown. Ovipositor sheath dark brown.

Lengths: Body 3.4 mm, antenna 2.9 mm, forewing 2.9 mm, ovipositor sheath 1.0 mm.

Male: Unknown.

Holotype: ♀, Lienhuachih, IX.1984 (KSL & KCC). Paratypes: Lienhuachih, 1♀, VIII, & 6♀, IX.1984 (KSL & KCC). Meifeng, 1♀, 15.VII. 1982 (SCL & CNL). Tungpu, 1♀, 20-24.

1983 (KCC & CYW); 1♀, 23-27.VII.1984 (KCC & CHY). Wufeng, 1♀, 7-11.VII.1979 (KCC). Wuling, 2♀, 27-29.VI.1979 (KSL & LYC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from the other Taiwanese *Triaspis* species by the following combination of characters: vein 1/R1 of forewing almost as long as stigmal length, clypeus concave apically and sharply pointed medially, metasoma 1.7 times as long as wide, and carapace apicoventrally weakly incurved.

Etymology: The specific name is the Chinese noun "shan" (mountain). It refers to the shape of apical clypeus.

Triaspis (Schizoprymnus) tungpuensis sp. n.

(Figs. 22, 56, 82 108, 136, 160, 175, 201, 229, 264)

Female: Head: 1.8 times as wide as long and 1.2 times wider than mesonotum. Eye 1.1 times as long as temple. Temple puncticulate; frons punctulate laterally, glabrous medially, rugose-punctate submedially; without large lamellate frontal carina. POL: OD: OOL=1 : 0.83 : 2.3. Vertex puncticulate, densely punctate around ocelli. Face 0.47 times as high as wide and 1.2 times as wide as eye height and 0.60 times as wide as head; densely punctate, with rugae near toruli; clypeus densely punctate, almost straight apically, not sharply pointed medially. Tentorial index 0.57. Malar space 0.73 times basal width of mandible. Antenna 23-segmented; F1 1.0 times as long as F2; lengths of F1, F2 and penultimate flagellomers 3.3, 3.3 and 1.3 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side largely smooth, medioanterioly crenulate, posteriorly foveate. Notauli deep and crenulate; mesoscutum punctulate, scutellum puncticulate. Subalar fossa foveate, with carinae posteriorly, precoxal sulcus foveate-rugose; disc of mesopleuron puncticulate. Metapleuron rugose-reticulate, sculptures weaker dorsally. Propodeum rugose-reticulate anteriorly, posteromedially weakly rugose-reticulate, rather smoot posterolaterally; with median longitudinal carina anteriorly and transverse carina, with ill defined medioposterior area; lateral propodeal tubercles distinct.

Wings: Forewing stigma 2.2 times as long as wide, 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.2 times apical posterior section of stigmal; r-rs: 3+4/Rs: 2/Rs=1: 11.0: 4.0; m-cu: 2/Rs+M=2.1: 1; 1cu-a postfurcal, 1/Cu: 2/Cu=0.26: 1. Hindwing: r-m: 1/M=0.70: 1; 1/M: Cu&cu-a=1.7: 1.

Hind leg: Coxa smooth. Lengths of femur, tibia and basitarsus 3.5, 6.8 and 4.3 times their width, respectively; tibia 1.3 times as long as femur; inner and outer spurs of tibia 0.59 and 0.53 times as long as basitarsus, respectively.

Metasoma: 1.5 times as long as wide; rugose-costate, interspace strigate; apically not incurved. T1 0.63 times as long as wide apically; basally rugose-reticulate between dorsal carinae; dorsal carinae distinct basally; T2+T3 almost as long as wide. Apical rim of carapace strongly emarginated. Ovipostior sheath 0.48 times as long as forewing.

Color: Dark brown; palpi and tegula brownish yellow. Antenna dark brown. Wings

hyaline, stigma and veins dark brown. Legs brownish yellow; hind tibia (except base) and tarsus dark brown. Ovipositor sheath blackish brown.

Lengths: Body 2.4 mm, antenna 2.2 mm, forewing 2.5 mm, ovipositor sheath 1.2 mm.

Male: Unknown.

Holotype: ♀, Tungpu, 28.IV.-2.V.1981 (TL & CJL). Paratype:Wushe, 1♀, 26.1V.1983 (HT) (in AEI).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species is close to *T. robustus* sp. n., but differs from it by the antenna with 23 segments, metasoma 1.5 times as long as wide, and the body dark brown.

Etymology: The specific name is derived from the name of the type locality, Tungpu.

Subgenus *TRIASPIS* Haliday

Triaspis Haliday, 1835. Ent. Mag. 3: 124, as subgenus of *Helcon*. Type species: *Sigalphus caudatus* Nees; designated by Viereck, 1912. - Viereck, 1912. Proc. U.S. natn. Mus. 42: 628.

Ichneutipterus Vachal, 1907. Revue Ent. 26: 122. Type species: *Sigalphus*? *ichneutipterus* Vachal, by monotype.

Triaspis (*Triaspis*): Martin, 1956. Publ. Dep. Agric. Can. 965: 64.

The subgenus *Triaspis* is characterized by the following combination of characters: propodeum without distinct spines; carapace with 2 distinct sutures; rim of carapace behind not denticulate. It contains about 110 species in the world. In this paper 2 new species are described from Taiwan.

Key to species of the subgenus *Triaspis* from Taiwan

1. Clypeus sharply pointed medially; carapace apically not incurved·····*shangchia* sp. n.
-. Clypeus not sharply pointed medially; carapace apicoventrally somewhat incurved ····· ····· *concavus* sp. n.

Triaspis (*Triaspis*) *concavus* sp. n.

(Figs. 33, 57, 83, 109, 111, 161, 187, 213, 239, 266)

Female: Head: 1.7 times as wide as long and 1.3 times wider than mesonotum, punctulate. Eye 1.5 times as long as temple. Frons rugose medioventrally, frontal carina distinct ventrally. POL: OD: OOL=1 : 0.73: 1.6. Face 0.56 times as high as wide and 1.2 times as wide as eye height and 0.58 times as wide as head; clypeus concave medially, not sharply pointed medially. Tentorial index 0.82. Malar space 1.0 times basal width of mandible. Antenna 23-segmented; F1 0.93 times as long as F2; lengths of F1, F2 and penultimate flagellomere 3.5, 3.8 and 1.0 times their width, respectively.

Mesosoma: 1.4 times as long as high. Pronotal side reticulate anteroventrally, medially and posteriorly, rest of pronotal side smooth. Notauli deep and crenulate; mesoscutum

punctulate; scutellum puncticulate. Subalar fossa and precoxal sulcus foveate; pleural groove crenulate, disc of mesopleuron largely puncticulate. Metapleuron reticulate-rugose. Propodeum largely rugose-reticulate, rather smooth anteriorly; with median longitudinal carina anteriorly and shortly developed transverse carina, without medioposterior area; lateral propodeal tubercles rather distinct.

Wings: Forewing: stigma 2.7 times as long as wide; 1/R1 slighly longer than stigmal length; basal posterior section of stigma 1.2 times apical posterior section of stigma; r-rs: 3 +4/Rs: 2/Rs=1: 9.2: 3.2; m-cu: 2/Rs+M=1.9: 1; 1cu-a postfurcal, 1/Cu: 2/Cu=0.15 : 1. Hindwing: r-m: 1/M=0.50: 1 ; 1/M: Cu&cu-a=2.2: 1.

Hind leg: Coxal largely smooth. Lengths of femur, tibia and basitarsus 4.2, 8.3 and 6.0 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia 0.29 and 0.25 times as long as basitarsus, respectively.

Metasoma: 1.7 times as long as wide, costate-rugulose, interspace strigate, apicoventrally somewhat incruved. T1 0.65 times as long as wide apically; dorsal carinae rather distinct in basa half; T2+T3 1.2 times as long as wide. Apical rim of carapace moderately emarginated. Ovipositor sheath 0.44 times as long as forewing.

Color: Blackish brown; palpi yellow, tegula yellowish brown. Antenna yellowish brown basally, dark brown apically. Wings hyaline, stigma and veins dark brown. Legs yellowish brown, hind tibia dark brown. Ovipositor sheath dark brown.

Lengths: Body 2.4 mm, antenna 1.9 mm, forewing 2.2 mm, ovipositor sheath 0.98 mm.

Male: Unknown.

Holotype: ♀, Lienhuachih, V.1984 (KSL & KCC). Paratypes: Lienhuachih, 1♀, same data as holotype. Wangfeng, IV.1984 (KSL & KCC). Wushe, 1♀, 22.V.1983 (HT) (in AEI).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from *T. shangchia* sp. n, by the clypeus not sharply pointed medially; basal flagellomeres distinctly lighter than apical segments, F1 3.5 times as long as wide; carapace apicoventrally somewhat incurved.

Etymology: *Concavus* means concave in Latin, refers to its clypeus concave medially.

Triaspis (Triaspis) shangchia sp. n.

(Figs. 34, 58, 84 110, 112, 162, 188, 214, 240, 265)

Female: Head: 1.4 times as wide as long and 1.2 times wider than mesonotum. Eye 0.70 times as long as temple. Temple, frons and vertex puncticulate; frons glabrous medioventrally; without distinct frontal carina. POL: OD: OOL=1 : 0.45 : 1.5. Face 0.60 times as high as wide and 1.1 times as wide as eye height and 0.56 times as wide as head, punctulate; clypeus sparsely punctate dorsally, rugulose ventrally, sharply pointed medially. Tentorial index 1.0. Malar space 0.82 times basal width of mandible. Antenna 29-segmented; F1 0.90 times as long as F2; lengths of F1, F2 and penultimate flagellomere 4.8, 4.2 and 1.3 times their width, respectivly.

Mesosoma: 1.5 times as long as high. Pronotal side largely smooth; pronotal trough

crenulate, collar anterially with some punctures and rugosity. Notauli deep and crenulate; mesoscutum punctulate, middle lobe with some rugulose posteriorly; scutellum puncticulate. Subalar fossa with some punctures and rugosity, precoxal sulcus crenulate; pleural groove crenulate, disc of mesopleuron puncticulate. Metapleuron rugose-reticulate. Propodeum punctulate anteriorly, rugose-reticulate posteriorly; with median longitudinal carina anteriorly and ill defined transverse carina, without distinct medioposterior area; without distinct lateral propodeal tubercles.

Wings: Forewing: stigma 2.8 times as long as wide; 1/R1 almost as long as stigmal length; basal posterior section of stigma 1.2 times apical posterior section of stigma; r-rs: 3 +4/Rs: 2/Rs=1: 7.6: 2.4; m-cu: 2/Rs+M=1.6: 1; 1cu-a postfurcal, 1/Cu: 2/Cu=0.19 : 1. Hindwing: r-m: 1/M=0.48: 1; 1/M: Cu&cu-a=1.6: 1.

Hind leg: Coxa with carinae dorsally. Lengths of femur, tibia and basitarsus 5.1, 9.0 and 8.0 times their width, respectively; tibia 1.4 times as long as femur; inner and outer spurs of tibia subequal, 0.38 times as long as basitarsus.

Metasoma: 1.7 times as long as wide; costate-rugulose, interspace strigulate or rugulose; apically not incurved. T1 0.63 times as long as wide apically; dorsal carinae rather distinct in basal half; T2+T3 1.1 times as long as wide. Apical rim of carapace weakly emarginated. Ovipositor sheath 0.67 times as long as forewing.

Color: Black; palpi and tegula blackish brown. Antenna blackish brown. Wings hyaline, stigma and veins dark brown. Legs dark brown; fore coxa, hind tibia and tarsus blackish brown, middle and metacoxae blackish brown. Ovipositor sheath blackish brown.

Lengths: Body 3.2 mm, antenna 3.1 mm, forewing 3.3 mm, ovipositor sheath 2.2 mm.

Male: Unknown.

Holotype: ♀, Tayulilng, 10-16.VI.1980 (KSL & BHC).

Distribution: Taiwan.

Host: Unknown.

Remarks: This species differs from *T. concavus* sp. n, by the clypeus sharply pointed medially; basal flagellomeres concolor with apical segments, F1 4.8 times as long as wide; carapace apically not incurved.

Etymology: The specific name is the Chinese noun "shangchia" (temple). It refers to the temple distinctly longer than eye length.

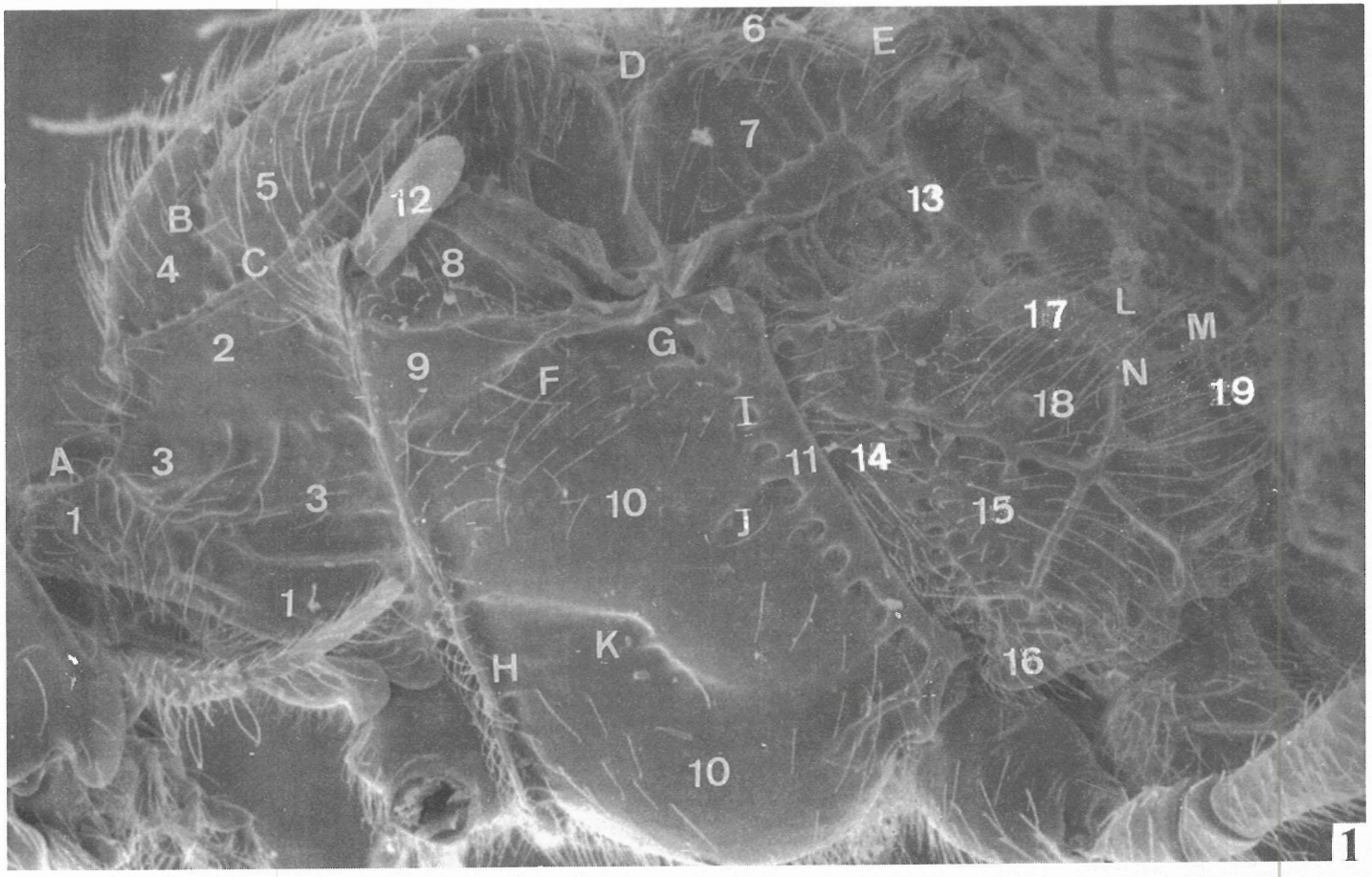


Fig. 1. Mesosoma in lateral view of *Blacus comatus* Van Achterberg.: 1, Collar; 2, Dorsal part of pronotal side; 3, Pronotal trough; 4, Midle lobe of mesoscutum; 5, Lateral lobe of mesoscutum; 6, Scutellum; 7, Axillary trough of mesonotum; 8, Anterior subalar depresson; 9, Subalar prominence; 10, Mesepistermum; 11, Mesepimeron; 12, Tegula; 13, Dorsellum; 14, Metepisternum; 15, Metepimeron; 16, Metapleural flange; 17, Propodeum; 18, Propodeal spiracle; 19, Areola; A, Pronope; B, Notauli; C, Lateral carina of mesoscutum; D, Scuto-scutellar sulcus; E, Lateral carina of scutellum; F, Subalar fossa; G, Subalar pit; H, Epicnemial carina; I, Pleural groove; J, Epistenal scrobe; K, Precoxal sulcus; L, Mediolongitudinal carina; M+N, Basal transverse carina; N, Costula.

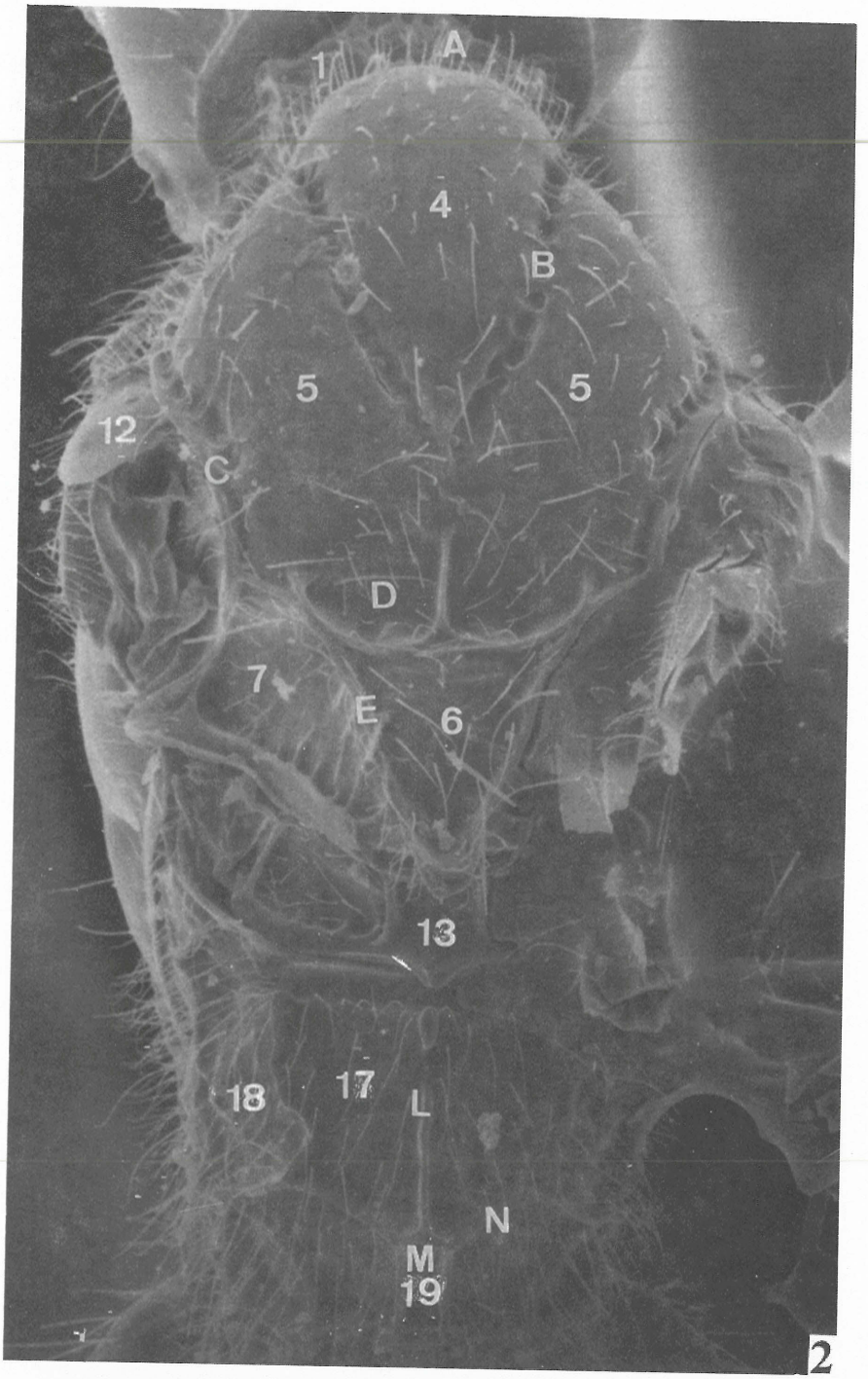
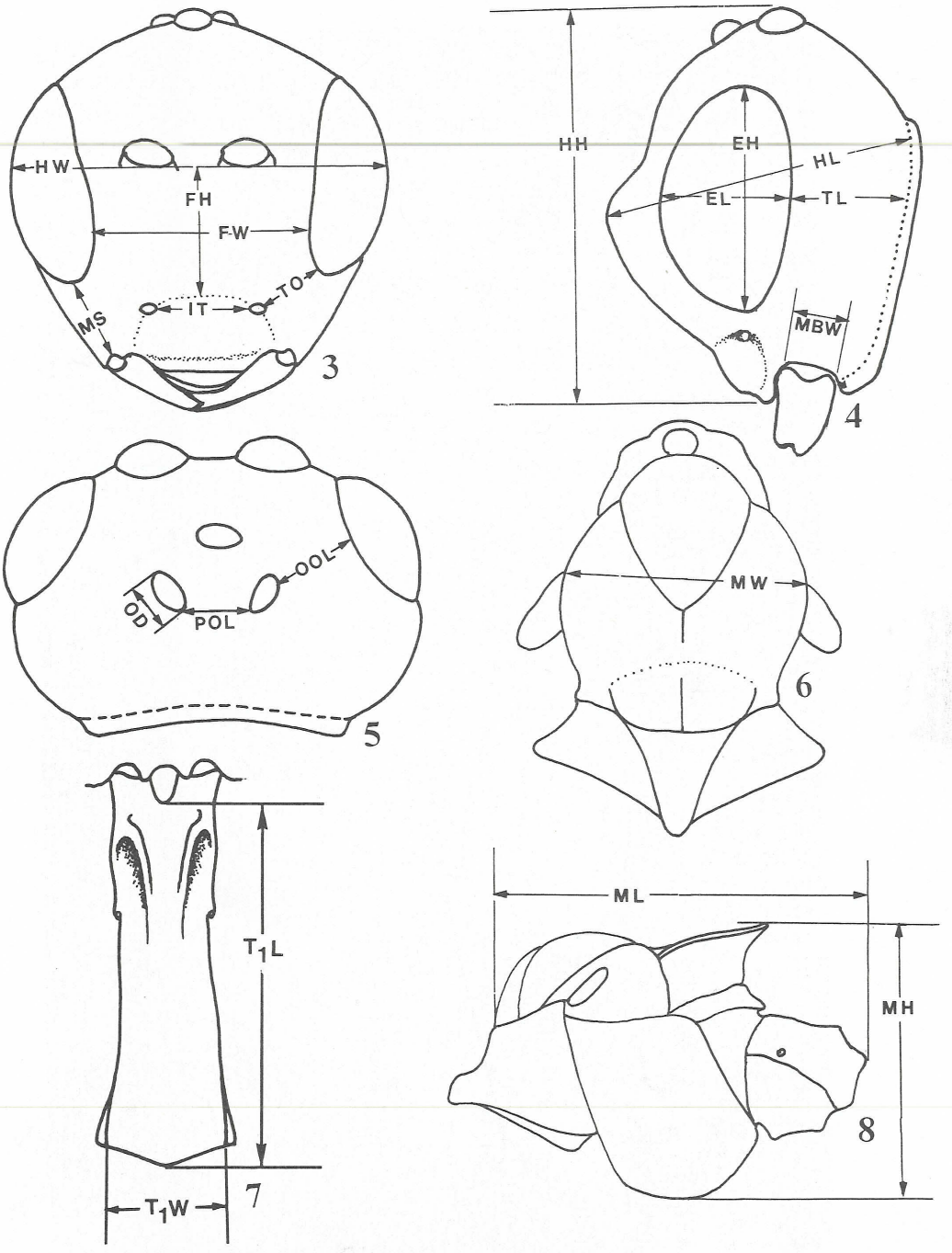
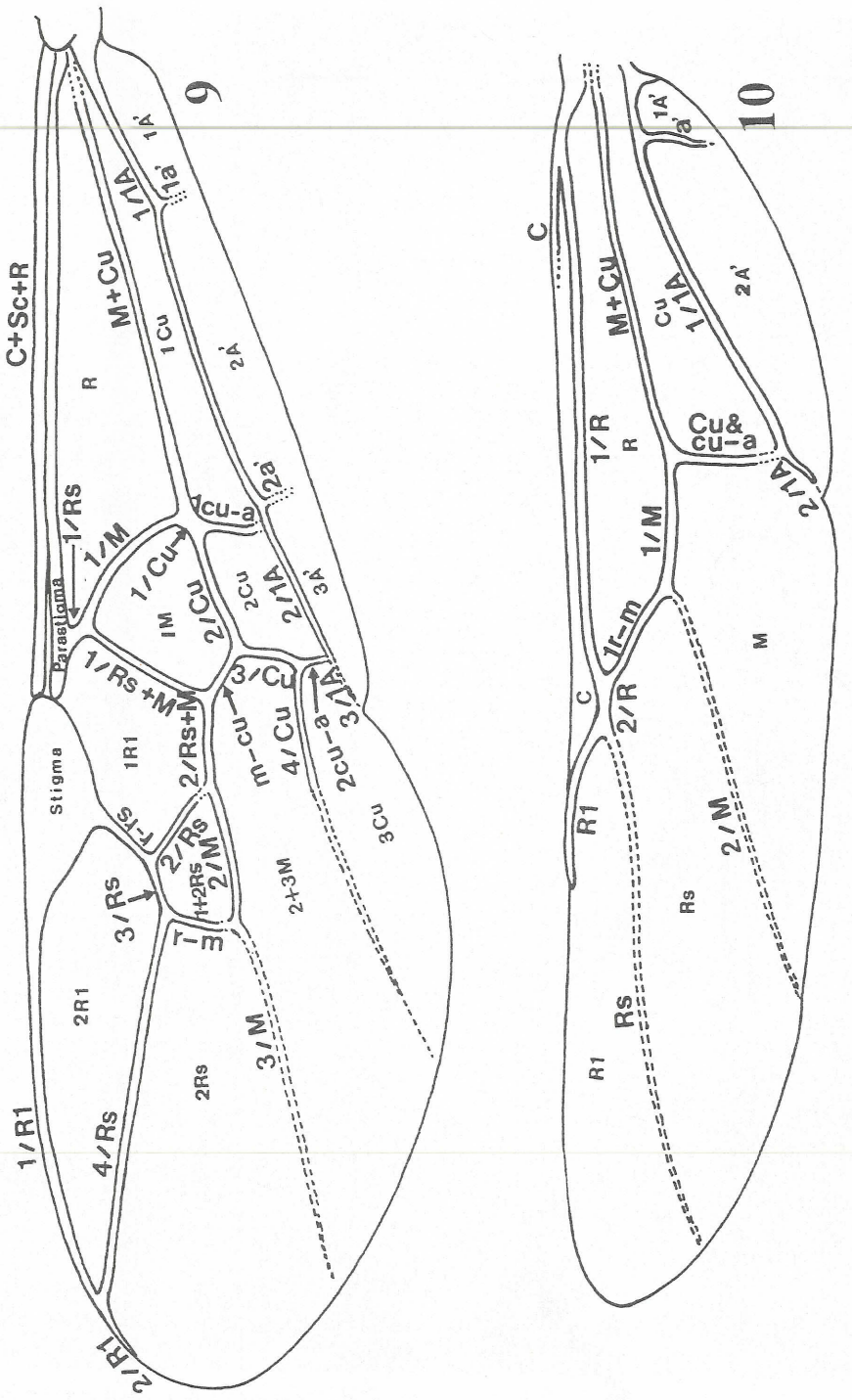


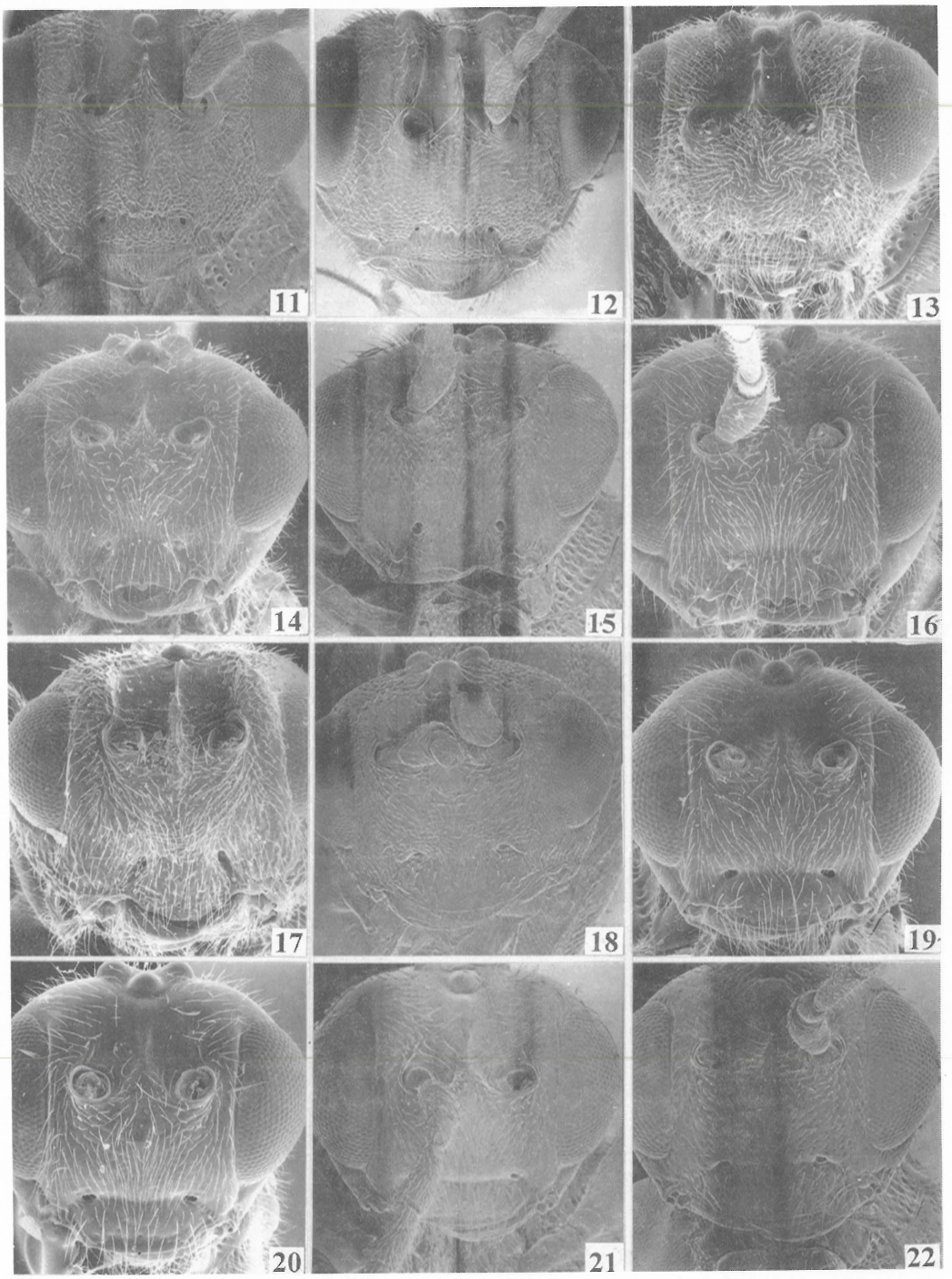
Fig. 2. Mesosoma in dorsal view of *Blacus comatus* Van Achterberg. 4, Middle lobe of mesoscutum; 5, Lateral lobe of mesoscutum; 6, Scutellum; 7, Axillary trough of mesonotum; 12, Tegula; 13, Dorsellum; 17, Propodeum; 18, Propodeal spiracle; 19, Areola; B, Notauli; C, Lateral carina of mesoscutum; D, Scuto-scutellar sulcus; E, Lateral carina of scutellum; L, Mediolongitudinal carina; M+N, Basal transverse carina; N, Costula.



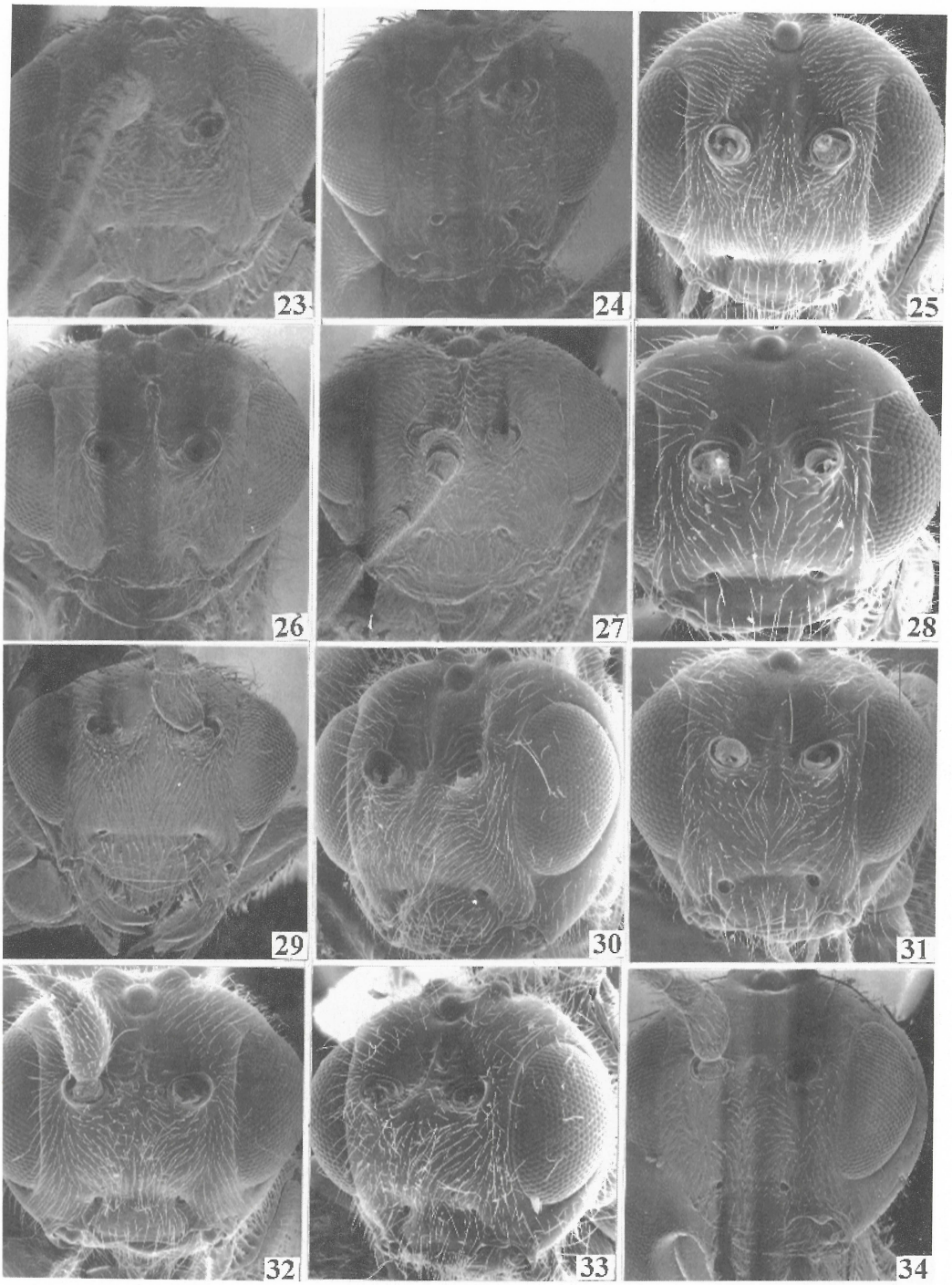
Figs. 3–8. *Blacus* sp.: 3, Head in frontal view; 4, Head in lateral view; 5, Head in dorsal view; 6, Mesonotum in dorsal view; 7, First metasomal tergum; 8, Mesosoma in lateral view. EH=Eye height; EL=Eye length; FH=Facial height; FW=Facial width; HH=Head height; HL=Head length; HW=Head width; IT =Intertentorial line; MBW=Mandible width; MH = Mesosomal height; ML = Mesosomal length; MS = Malar space; MW=Mesosomal width; OD=Ocellar diameter; OOL=ocular ocellar line; POL=posterior ocellar line; TL=Temple length; TO=Tentorio-ocular line; T1L=First metasomal tergite length; T1W=First metasomal tergite width.



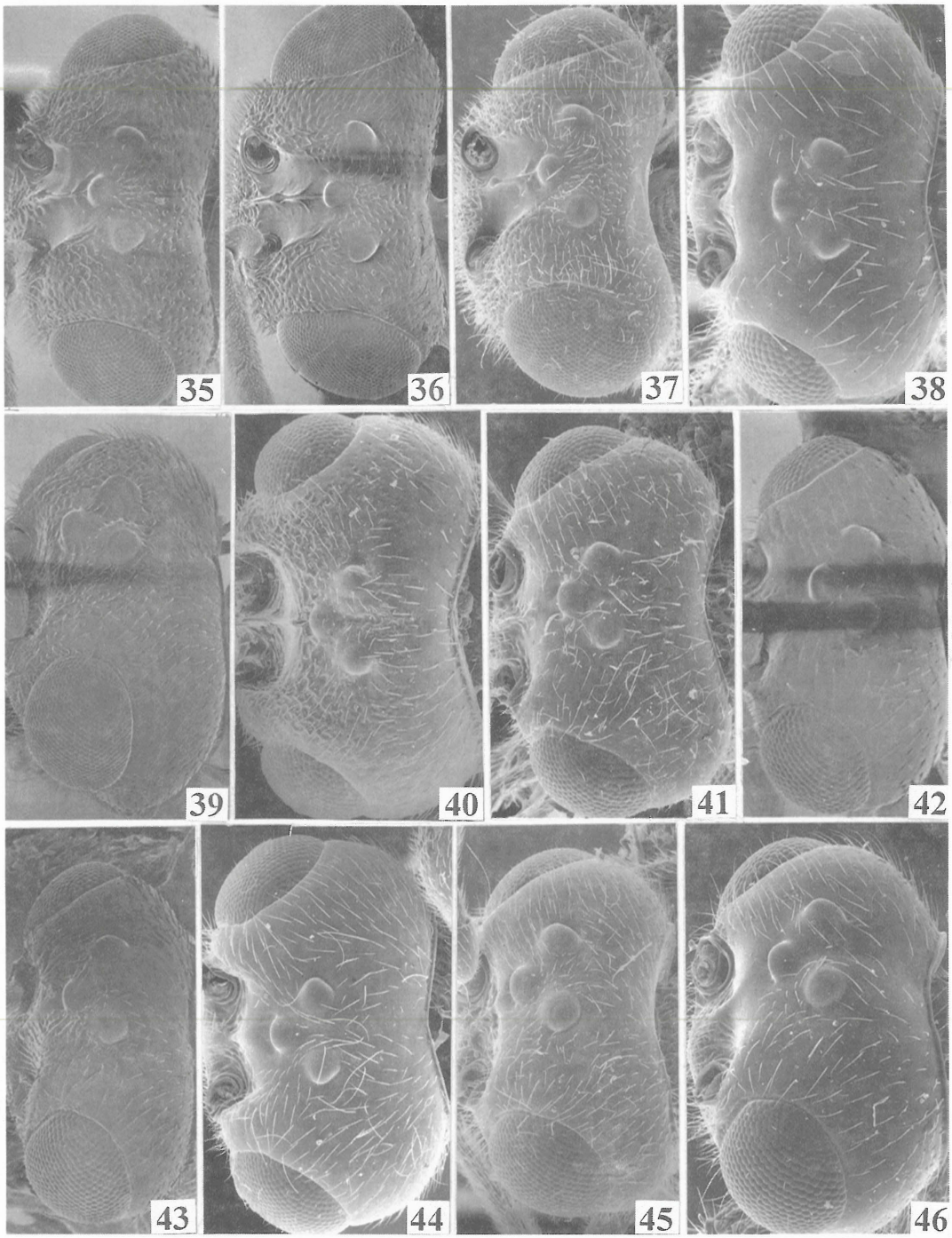
Figs. 9-10. Nomenclature of the wing venation (After Huber and Sharkey, 1993): 9, Forewing; 10, Hindwing.



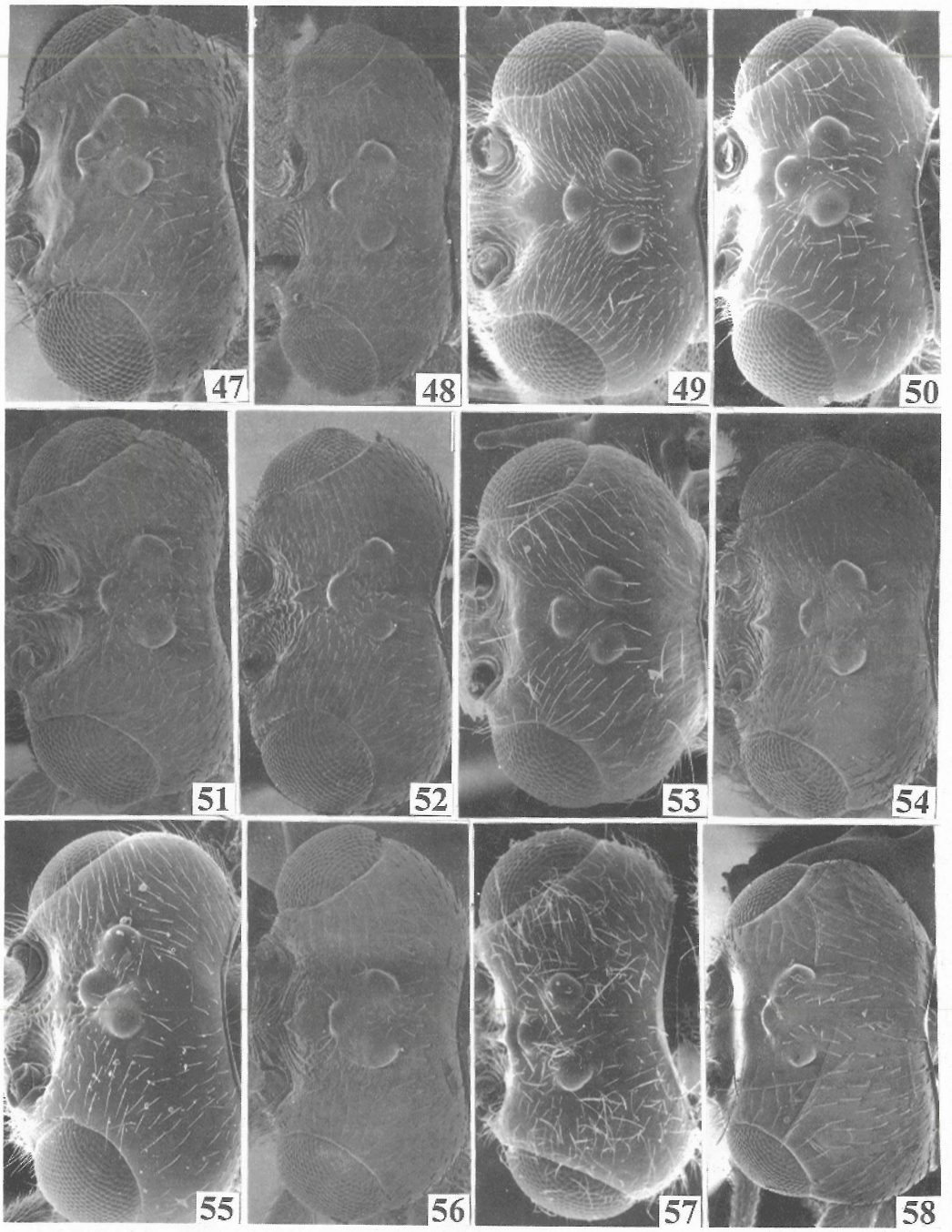
Figs. 11–22. Frontal view of heads of Triaspina ♀: 11, *Canalicephalus fugou* sp. n.; 12, *C. longus* sp. n.; 13, *C. taiwanensis* sp.n.; 14, *Triaspis imitatus* Papp; 15, *T. hui* sp. n.; 16, *T. shan* sp. n.; 17, *T. borpian* sp.n.; 18, *T. bicolor* sp.n.; 19, *T. distinctus* sp.n.; 20, *T. kueichia* sp.n.; 21, *T. robustus* sp.n.; 22, *T. tungpuensis* sp.n.



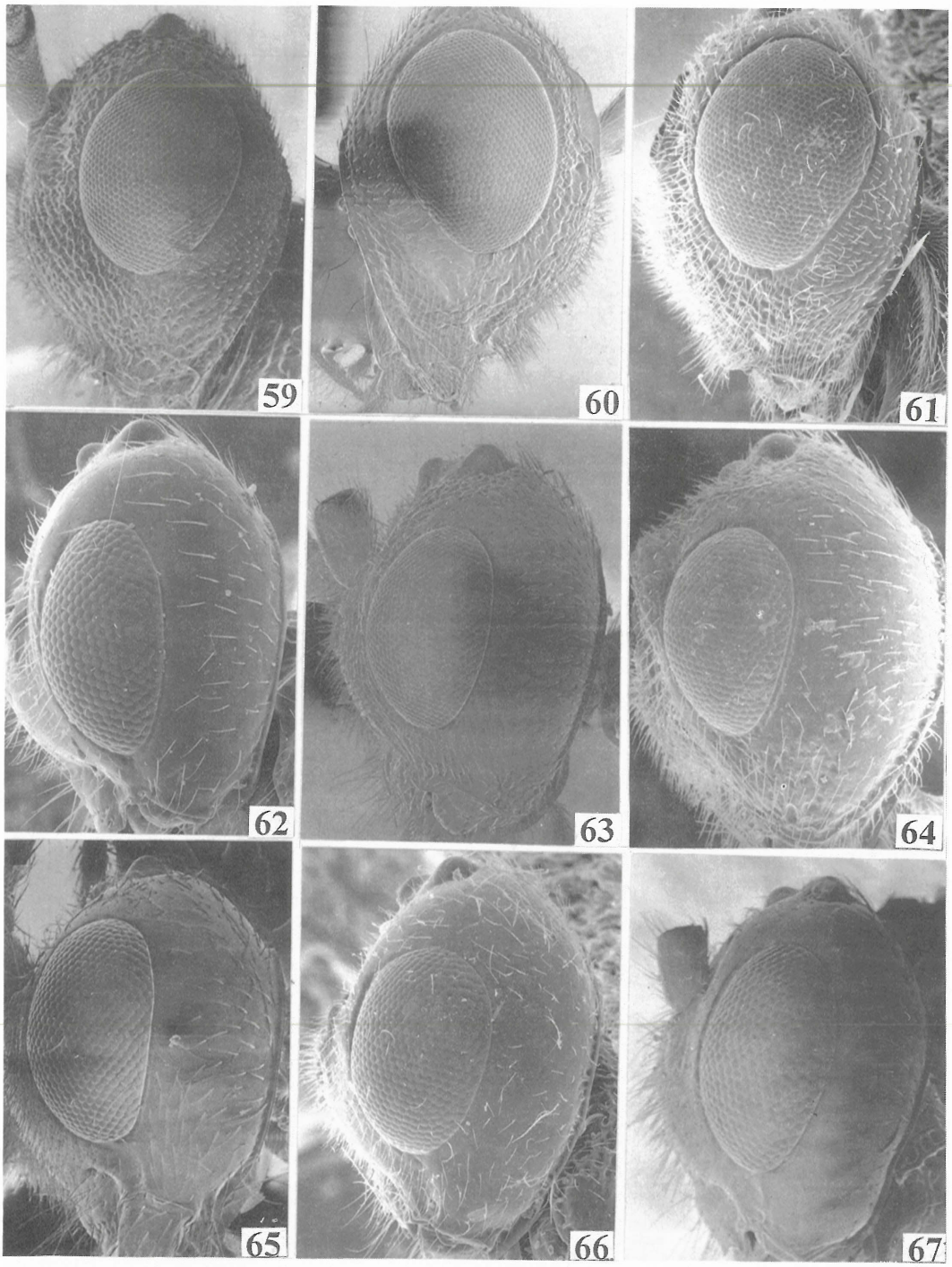
Figs. 23–34. Frontal view of heads of Triaspina ♀: 23, *Triaspis chouwen* sp. n.; 24, *T. fessus* sp. n.; 25, *T. ketiao* sp. n.; 26, *T. lienhuachihensis* sp. n.; 27, *T. loi* sp. n.; 28, *T. beitun* sp. n.; 29, *T. calvus* sp. n.; 30, *T. chunji* sp. n.; 31, *T. ovatus* sp. n.; 32, *T. curvatus* sp. n.; 33, *T. concavus* sp. n.; 34, *T. shangchia* sp. n.



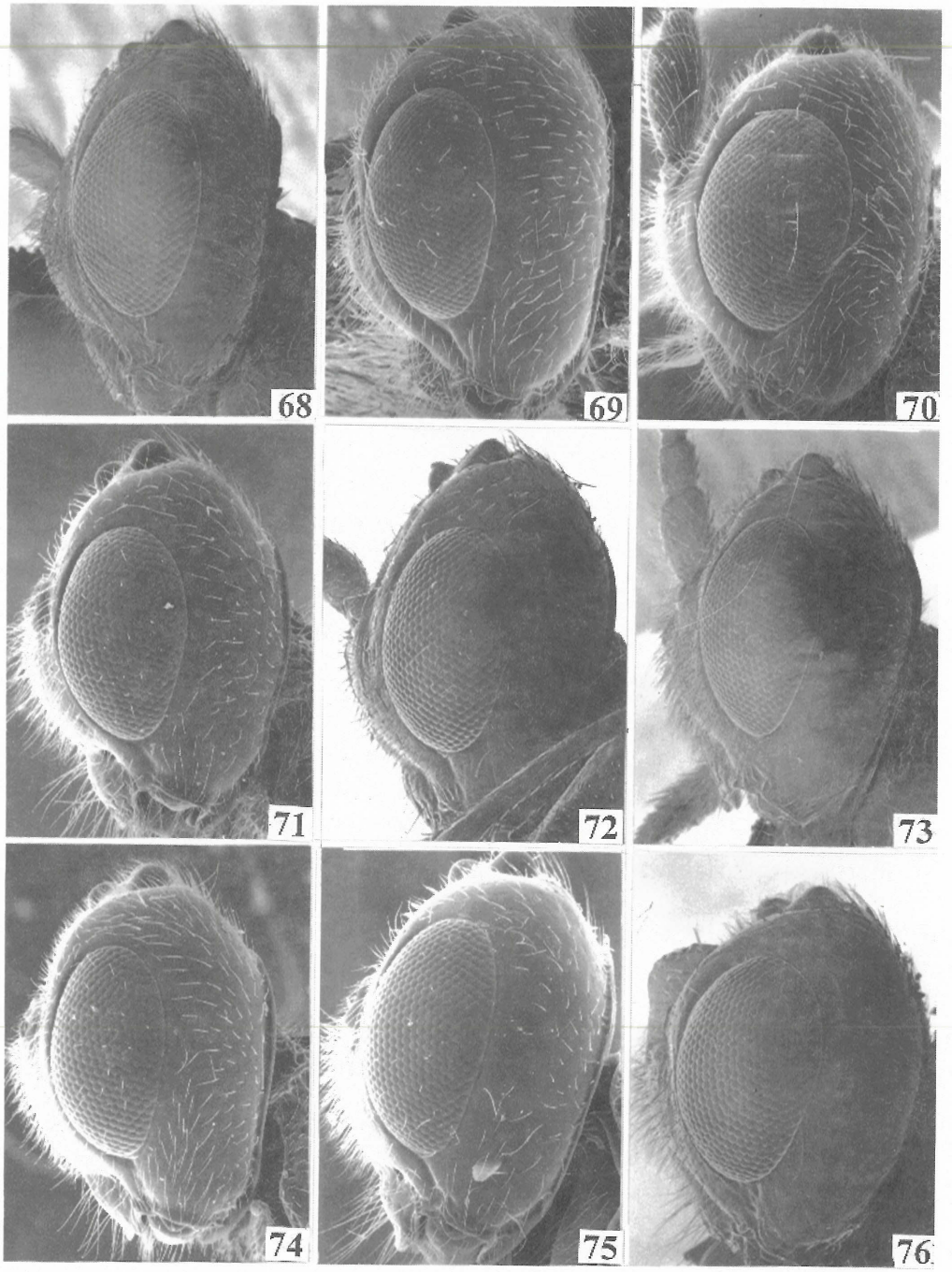
Figs. 35–46. Dorsal view of heads of Triaspina ♀: 35, *Canalicephalus fugou* sp. n.; 36, *C. longus* sp. n.; 37, *C. taiwanensis* sp. n.; 38, *Triaspis beitun* sp. n.; 39, *T. bicolor* sp. n.; 40, *T. borpian* sp. n.; 41, *T. imitatus* Papp; 42, *T. chiu* sp. n.; 43, *T. chouwen* sp. n.; 44, *T. chunji* sp. n.; 45, *T. curvatus* sp. n.; 46, *T. distinctus* sp. n.



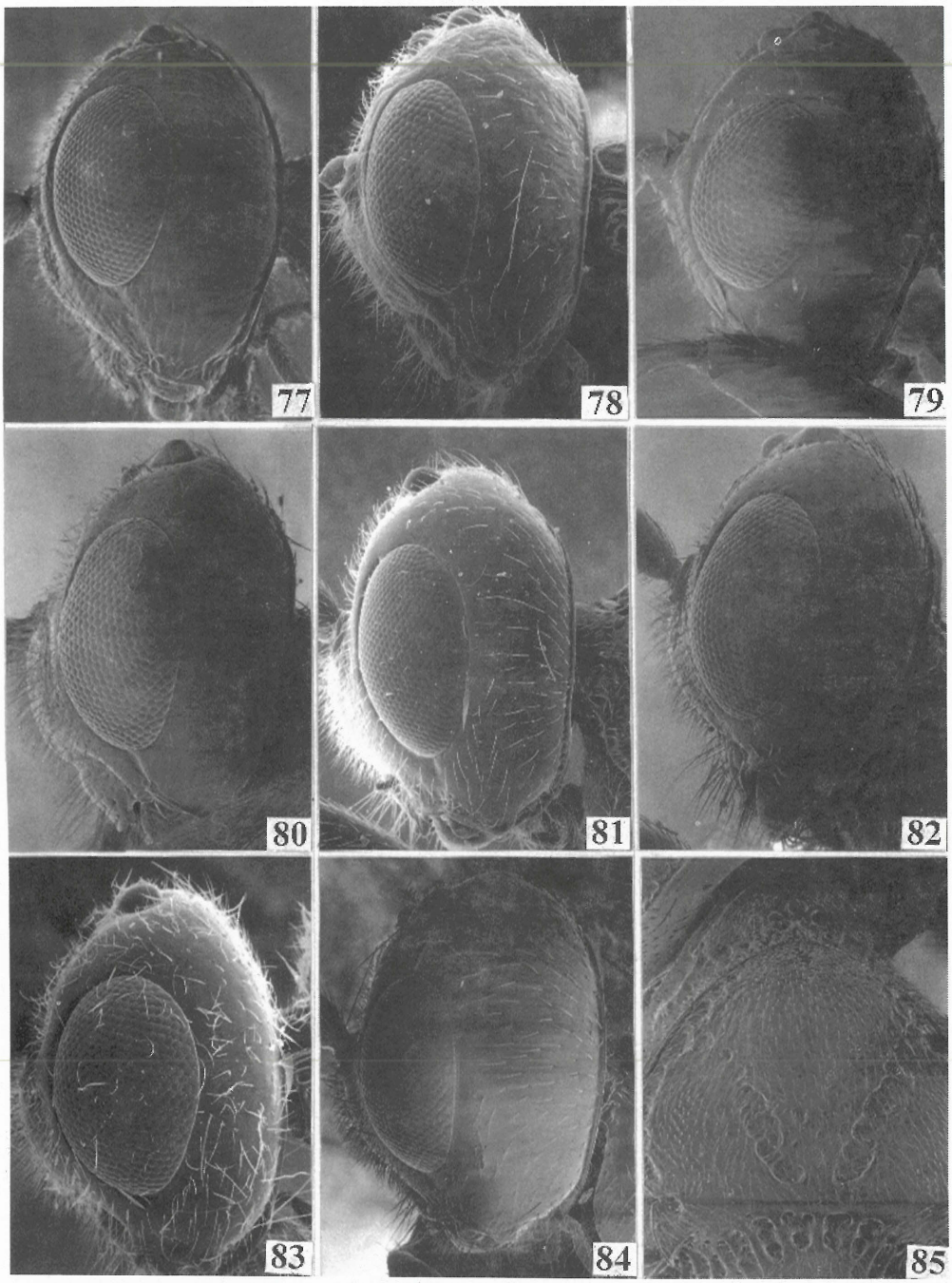
Figs. 47–58. Dorsal view of heads of Triaspina ♀: 47, *Triaspis fessus* sp. n.; 48, *T. hui* sp. n.; 49, *T. ketiao* sp. n.; 50, *T. kueichia* sp. n.; 51, *T. lienhuachihensis* sp. n.; 52, *T. loi* sp. n.; 53, *T. ovatus* sp. n.; 54, *T. robustus* sp. n.; 55, *T. shan* sp. n.; 56, *T. tungpuensis* sp. n.; 57, *T. concavus* sp. n.; 58, *T. shangchia* sp. n.



Figs. 59-67. Lateral view of heads of Triaspina ♀: 59, *Canalicephalus fugou* sp. n.; 60, *C. longus* sp. n.; 61, *C. taiwanensis* sp. n.; 62, *Triaspis beitun* sp. n.; 63, *T. bicolor* sp. n.; 64, *T. borpian* sp. n.; 65, *T. calvus* sp. n.; 66, *T. imitatus* Papp; 67, *T. chiu* sp.n.

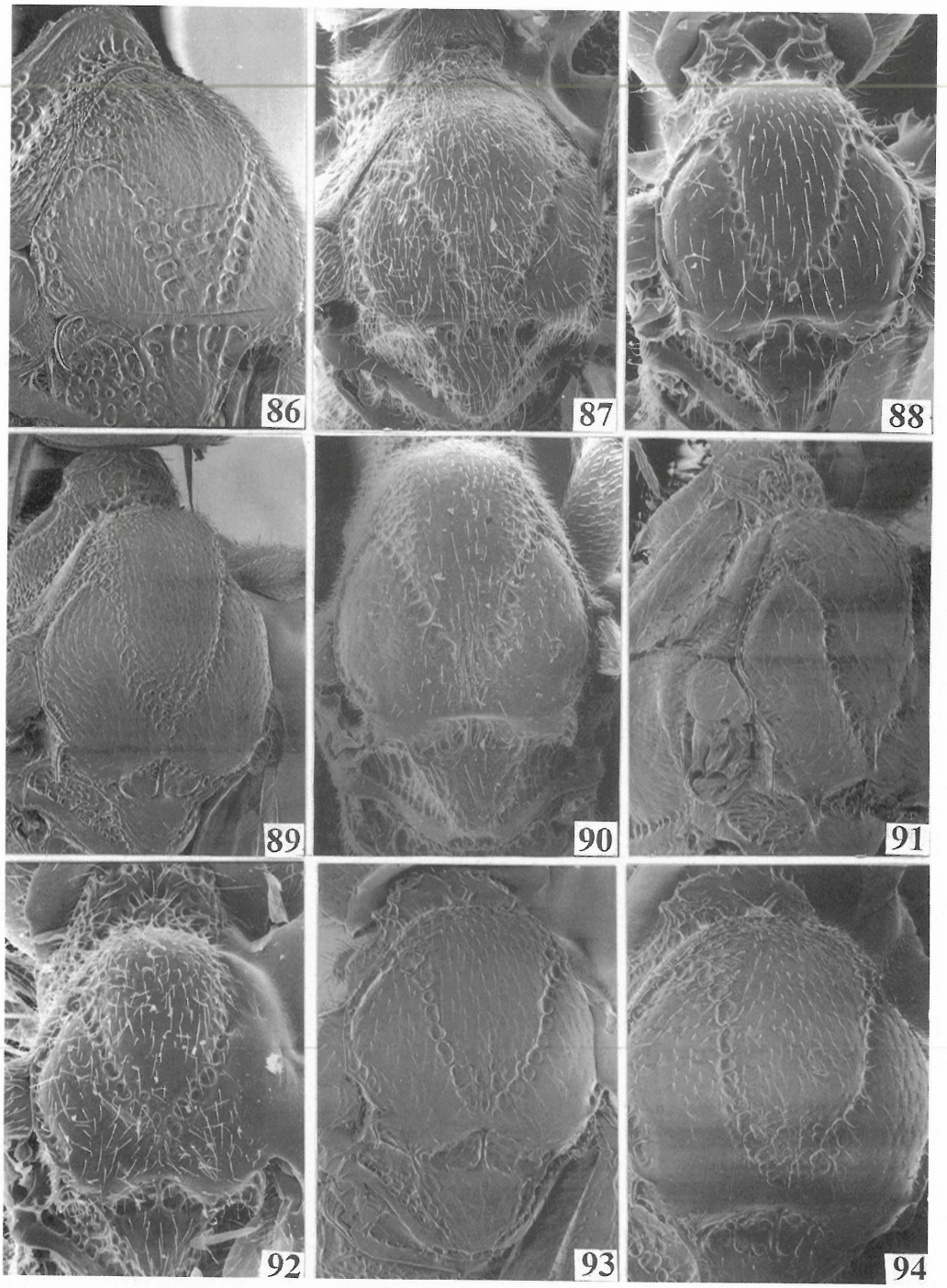


Figs. 68–76. Lateral view of heads of Triaspina ♀: 68, *Triaspis chouwen* sp. n.; 69, *T. chunji* sp. n.; 70, *T. curvatus* sp. n.; 71, *T. distinctus* sp. n.; 72, *T. fessus* sp. n.; 73, *T. hui* sp. n.; 74, *T. ketiao* sp. n.; 75, *T. kueichia* sp. n.; 76, *T. lienhuachihensis* sp. n.

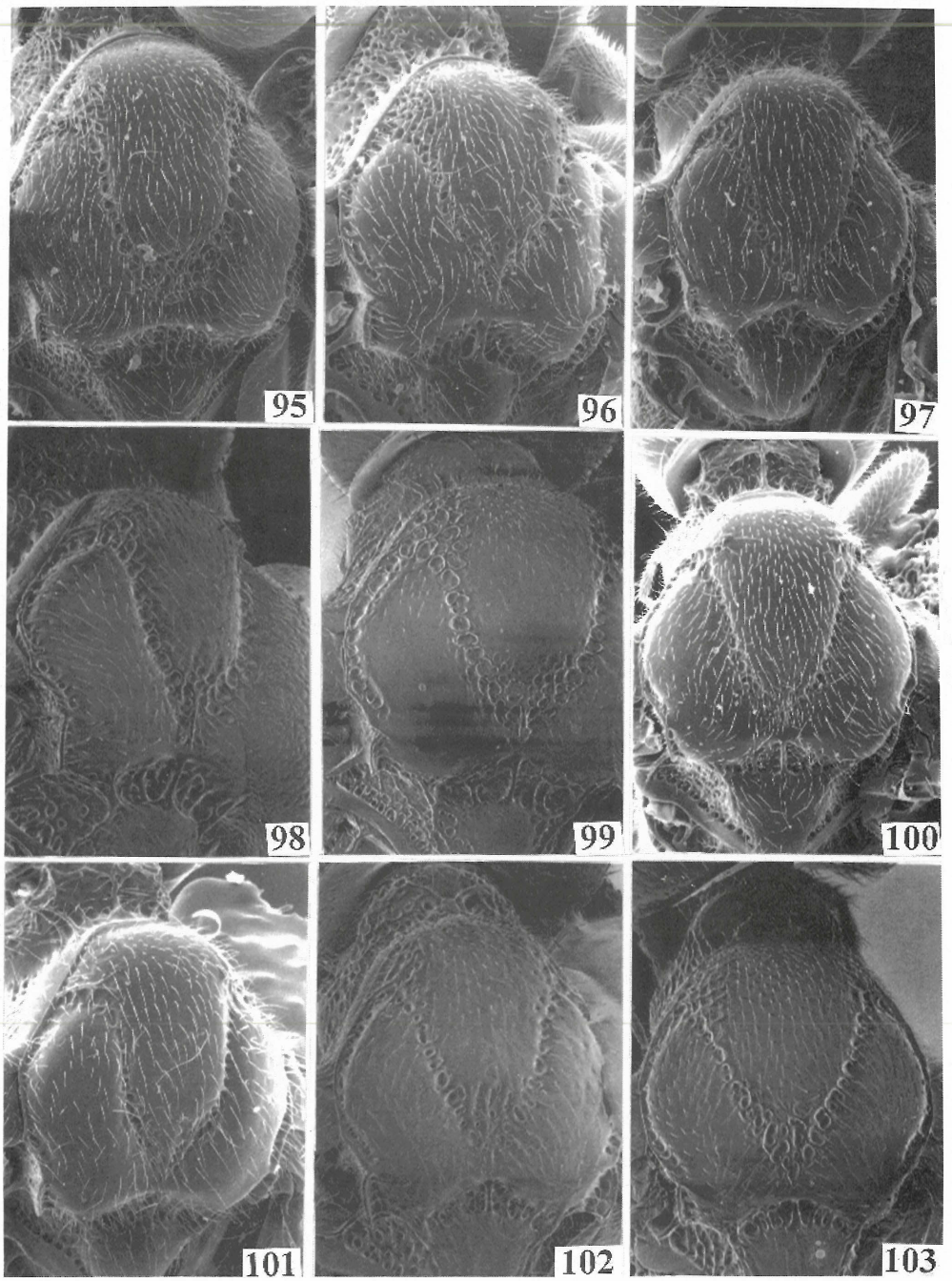


Figs. 77–84. Lateral view of heads of Triaspina ♀: 77, *Triaspis loi* sp. n.; 78, *T. ovatus* sp. n.; 79, *T. plenus* sp. n.; 80, *T. robustus* sp. n.; 81, *T. shan* sp. n.; 82, *T. tungpuensis* sp. n.; 83, *T. concavus* sp. n.; 84, *T. shangchia* sp. n.

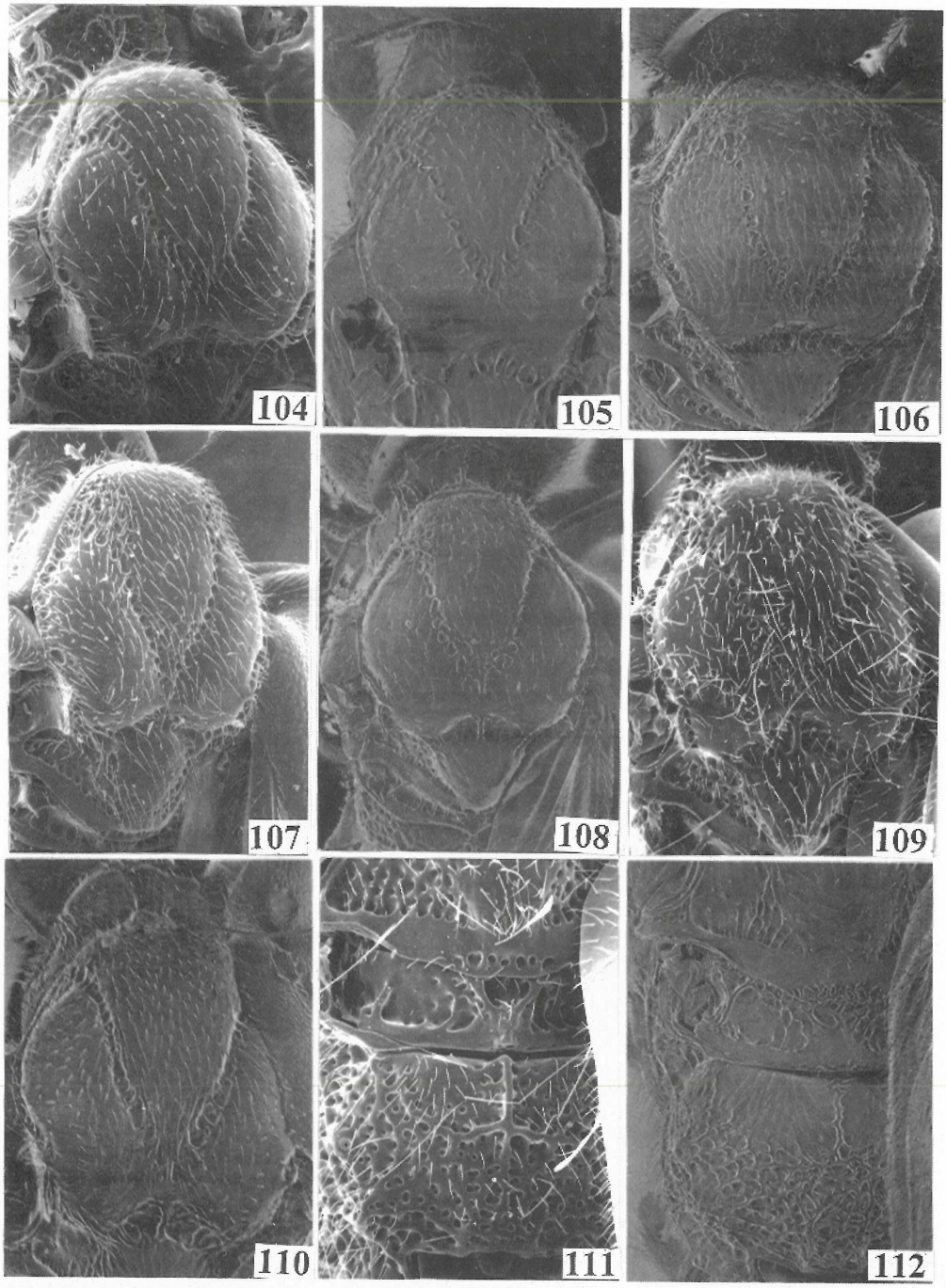
Fig. 85. Dorsal view of mesoscutum of *Canalicephalus fugou* sp. n.♀.



Figs. 86–94. Dorsal view of mesonota of Triaspina ♀: 86, *Canalicephalus longus* sp. n.; 87, *C. taiwanensis* sp. n.; 88, *Triaspis beitun* sp. n.; 89, *T. bicolor* sp. n.; 90, *T. borpian* sp. n.; 91, *T. calvus* sp. n.; 92, *T. imitatus* Papp; 93, *T. chiu* sp. n.; 94, *T. chouwen* sp. n.

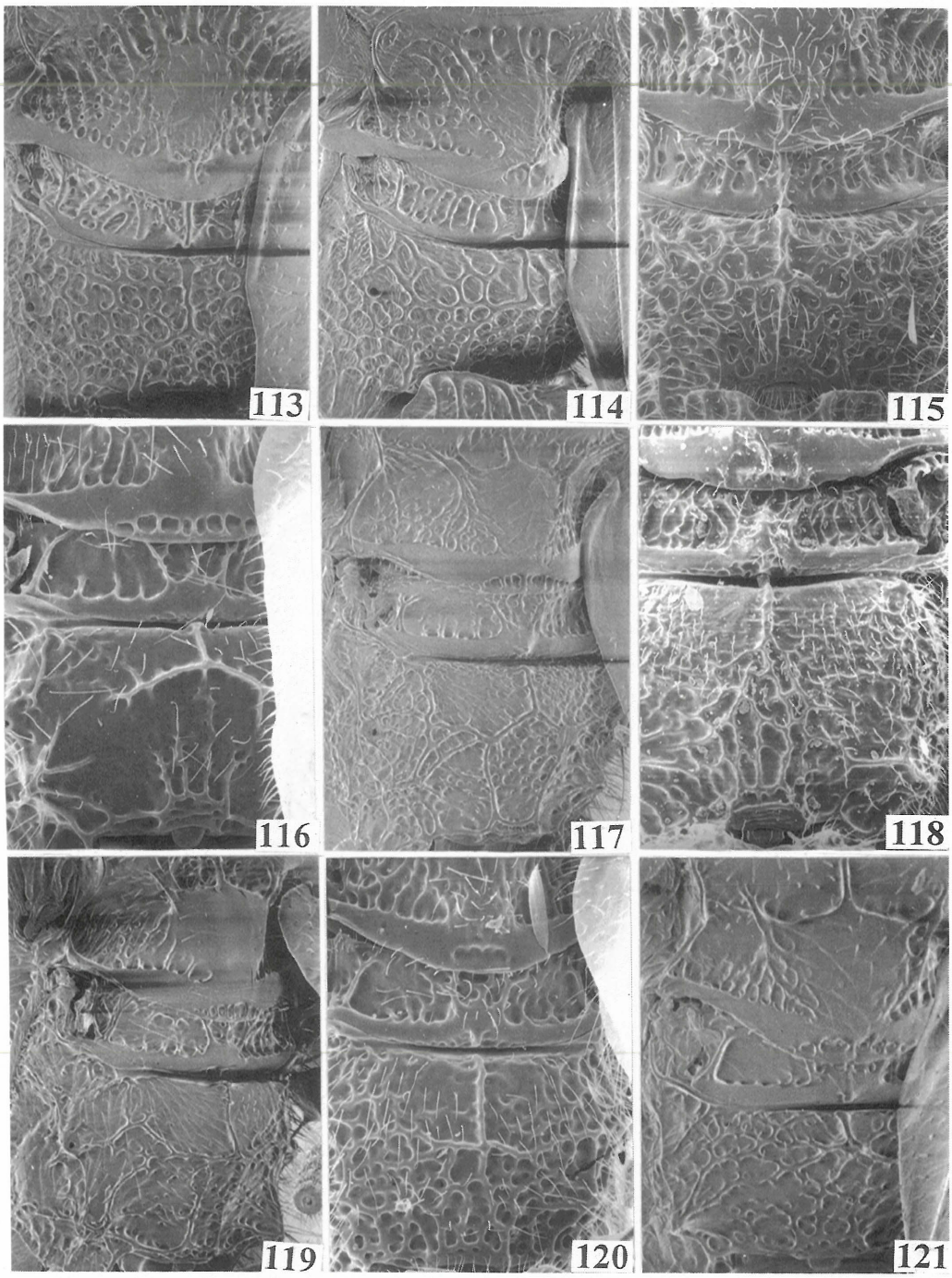


Figs. 95–103. Dorsal view of mesonota of Triaspina ♀: 95, *Triaspis chunji* sp. n.; 96, *T. curvatus* sp. n.; 97, *T. distinctus* sp. n.; 98, *T. fessus* sp. n.; 99, *T. hui* sp. n.; 100, *T. ketiao* sp. n.; 101, *T. kueichia* sp. n.; 102, *T. lienhuachihensis* sp. n.; 103, *T. loi* sp. n.

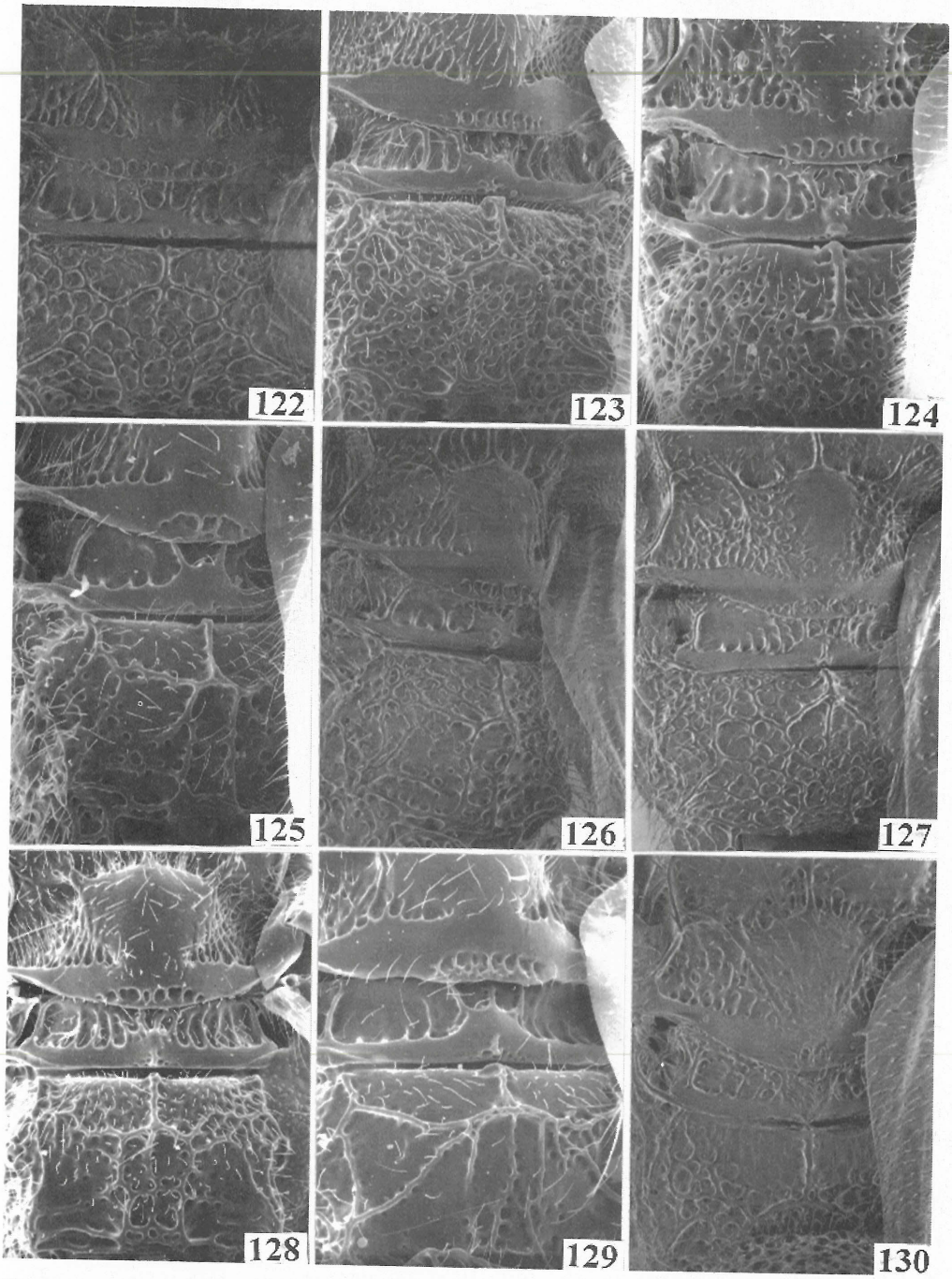


Figs. 104–110. Dorsal view of mesonota of Triaspina ♀: 104, *Triaspis ovatus* sp. n.; 105, *T. plenus* sp. n.; 106, *T. robustus* sp. n.; 107, *T. shan* sp. n.; 108, *T. tungpuensis* sp. n.; 109, *T. concavus* sp. n.; 110, *T. shangchia* sp. n.

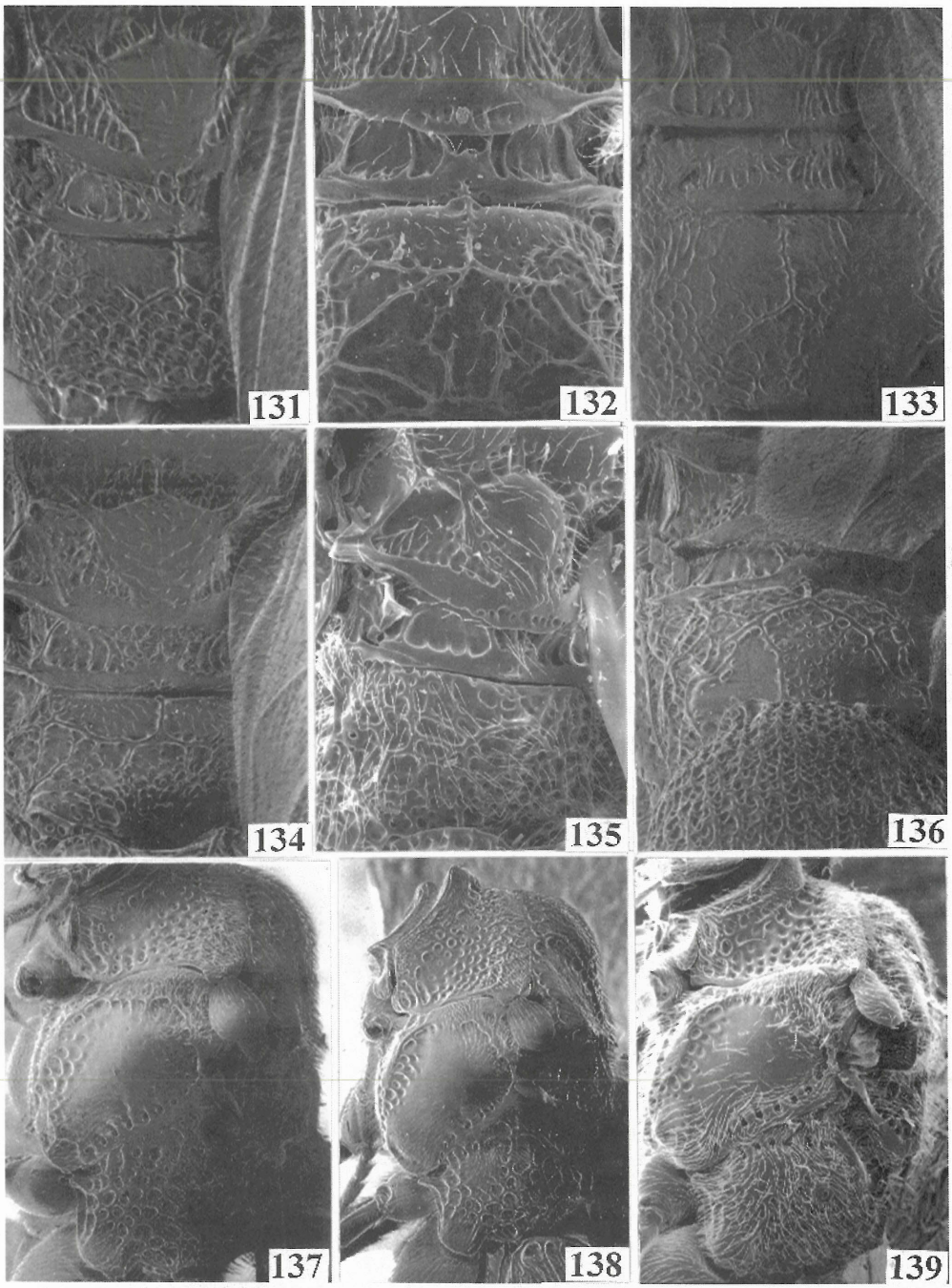
Figs. 111–112. Dorsal view of metanota and propodea of Triaspina ♀: 111, *Triaspis concavus* sp. n.; 112, *T. shangchia* sp. n.



Figs. 113–121. Dorsal view of metanota and propodea of Triaspina ♀: 113, *Canalicephalus fugou* sp. n.; 114, *C. longus* sp. n.; 115, *C. taiwanensis* sp. n.; 116, *T. beitun* sp. n.; 117, *T. bicolor* sp. n.; 118, *T. borpian* sp. n.; 119, *T. calvus* sp. n.; 120, *T. imitatus* Papp; 121, *T. chiu* sp.n.

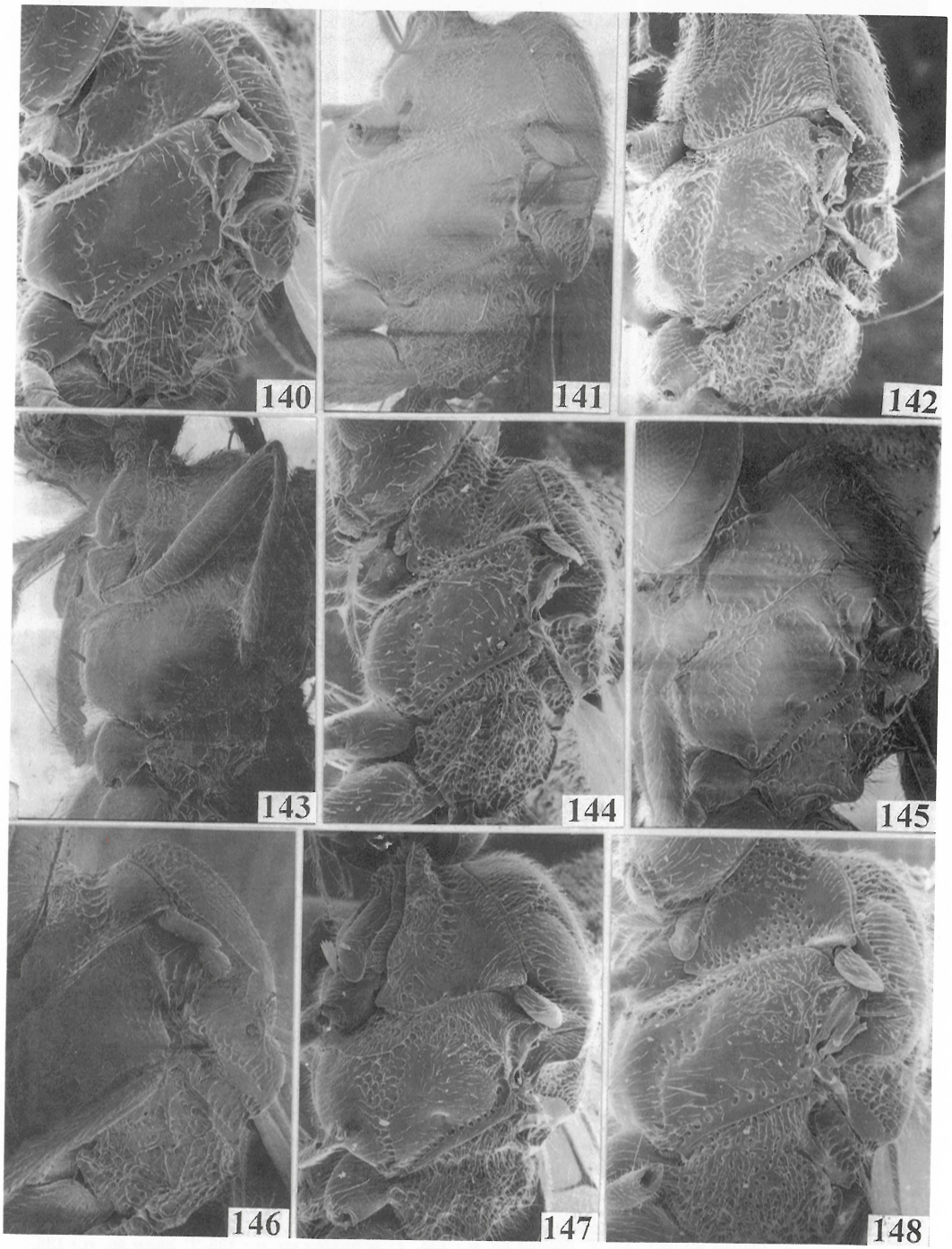


Figs. 122–130. Dorsal view of metanota and propodea of Triaspina ♀: 122, *Triaspis chouwen* sp. n.; 123, *T. chunji* sp. n.; 124, *T. curvatus* sp. n.; 125, *T. distinctus* sp.n.; 126, *T. fessus* sp. n.; 127, *T. hui* sp. n.; 128, *T. ketiao* sp. n.; 129, *T. kueichia* sp. n.; 130, *T. lienhuachihensis* sp.n.

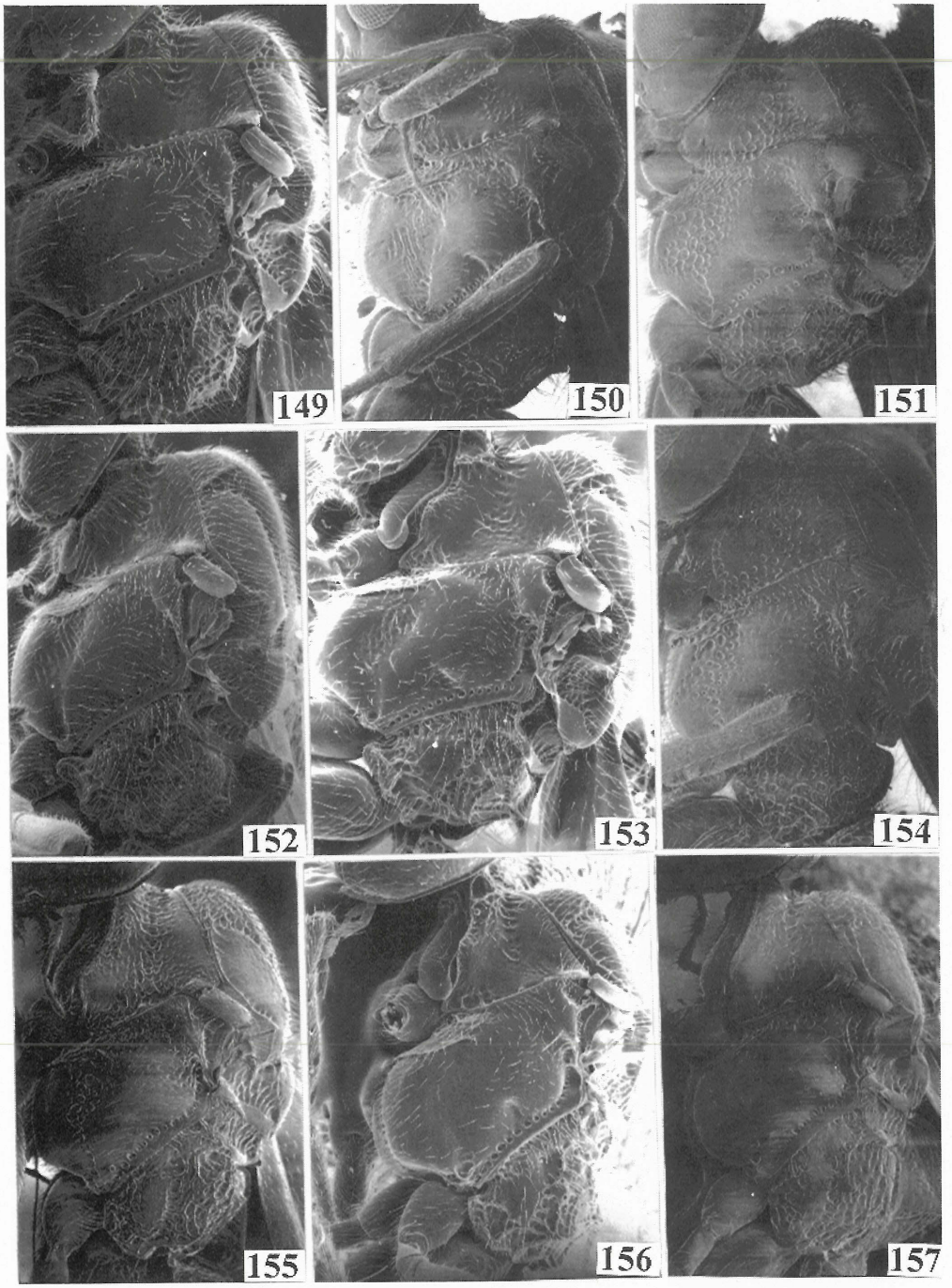


Figs. 131–136. Dorsal view of metanota and propodea of Triaspina ♀: 131, *Triaspis loi* sp. n.; 132, *T. ovatus* sp. n.; 133, *T. plenus* sp. n.; 134, *T. robustus* sp. n.; 135, *T. shan* sp. n.; 136, *T. tungpuensis* sp. n.

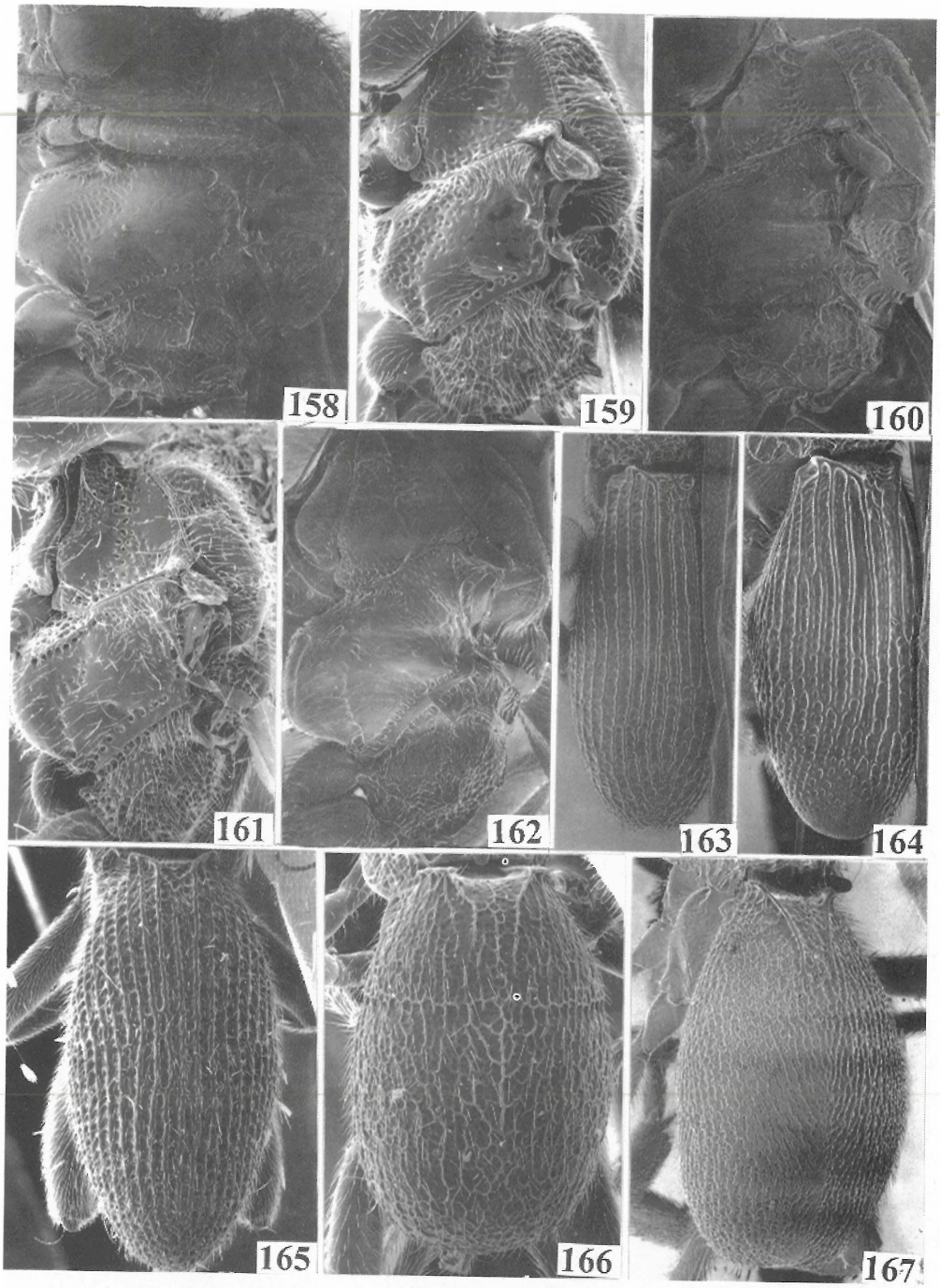
Figs. 137–139. Lateral view of mesosomata of Triaspina ♀: 137, *Canalicephalus fugou* sp. n.; 138, *C. longus* sp. n.; 139, *C. taiwanensis* sp. n.



Figs. 140–148. Lateral view of mesosomata of Triaspina ♀: 140, *Triaspis beitun* sp. n.; 141, *T. bicolor* sp. n.; 142, *T. borpian* sp. n.; 143, *T. calvus* sp. n.; 144, *T. imitatus* Papp; 145, *T. chiu* sp. n.; 146, *T. chouwen* sp. n.; 147, *T. chunji* sp. n.; 148, *T. curvatus* sp. n.

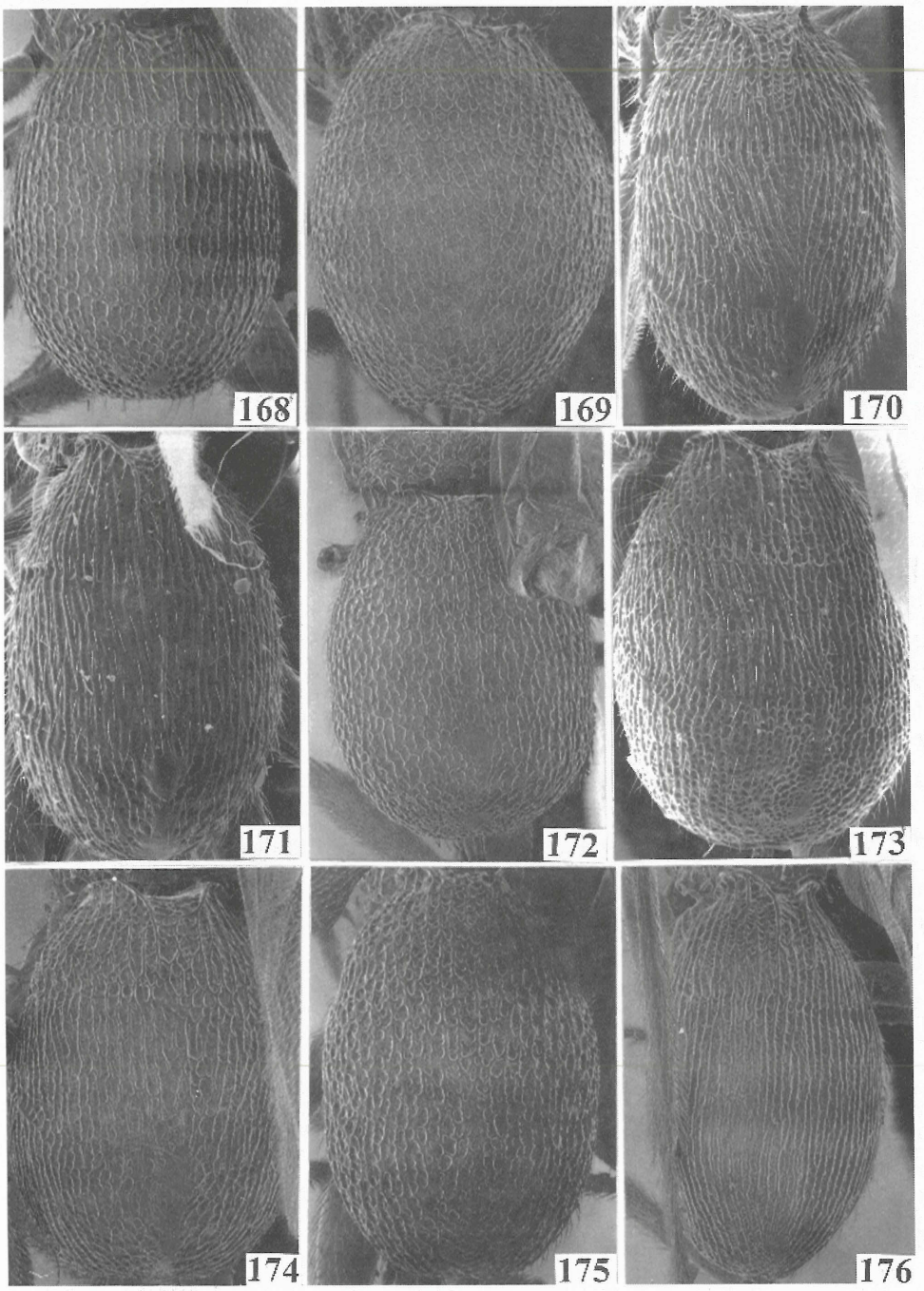


Figs. 149–157. Dorsal view of mesosomata of Triaspina ♀: 149, *Triaspis distinctus* sp. n.; 150, *T. fessus* sp. n.; 151, *T. hui* sp. n.; 152, *T. ketiao* sp. n.; 153, *T. kueichia* sp. n.; 154, *T. lienhuachihensis* sp. n.; 155, *T. loi* sp. n.; 156, *T. ovatus* sp. n.; 157, *T. plenus* sp. n.

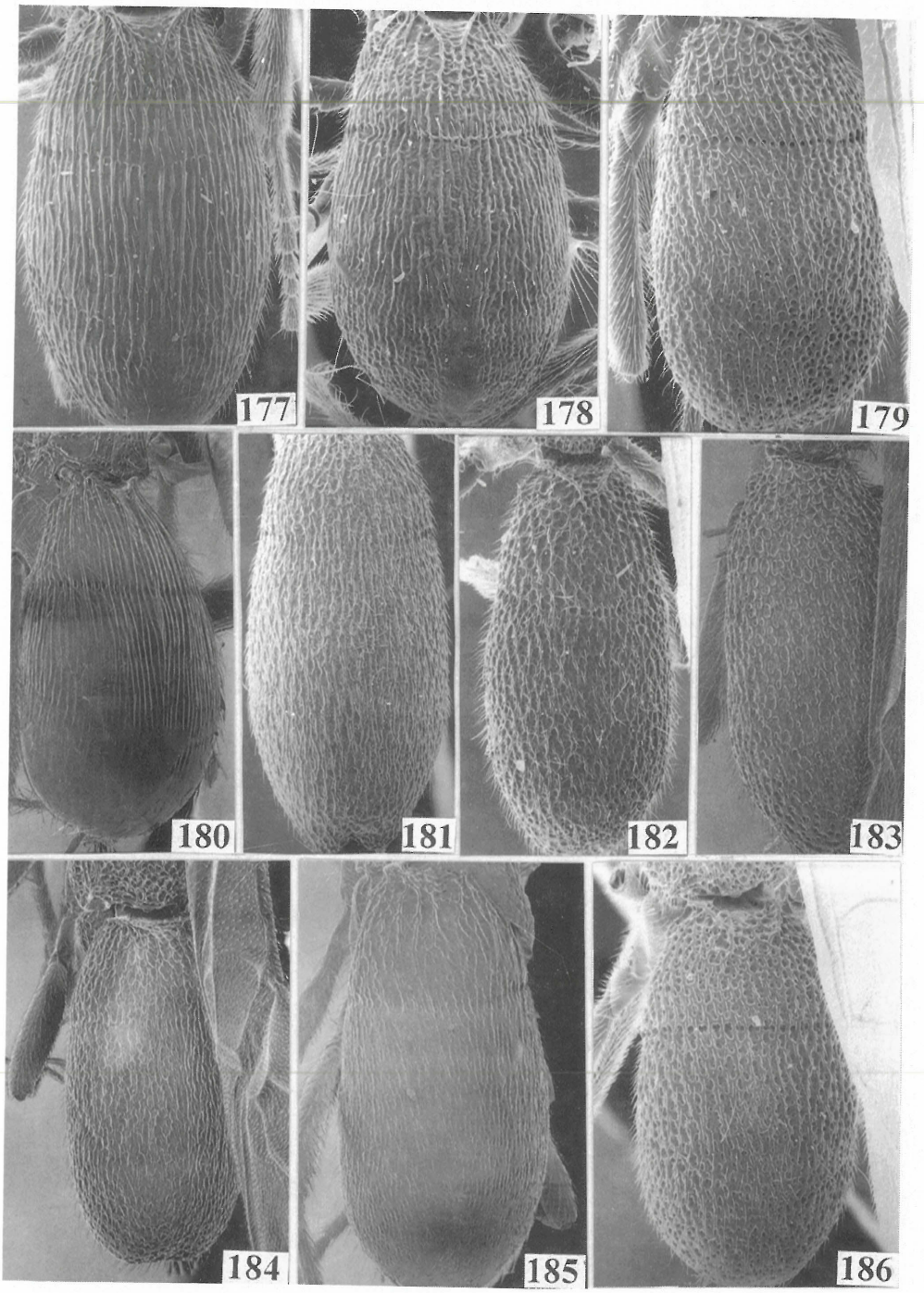


Figs. 158–162. Lateral view of mesosomata of Triaspina ♀: 158, *Triaspis robustus* sp. n.; 159, *T. shan* sp. n.; 160, *T. tungpuensis* sp. n.; 161, *T. concavus* sp. n.; 162, *T. shangchia* sp. n.

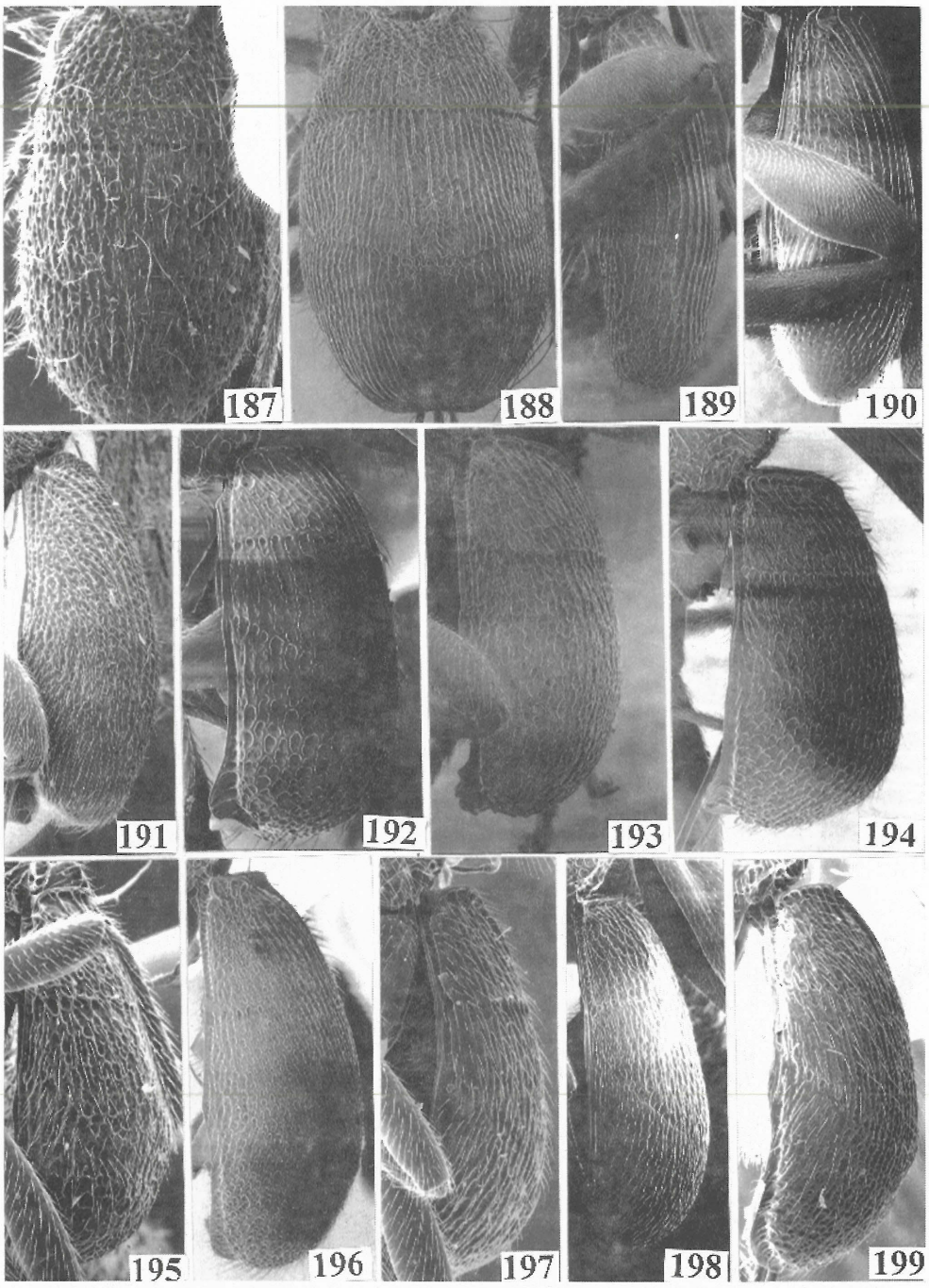
Figs. 163–167. Dorsal view of metasomata of Triaspina ♀: 163, *Canalicephalus fugou* sp. n.; 164, *C. longus* sp. n.; 165, *C. taiwanensis* sp. n.; 166, *T. beitun* sp. n.; 167, *T. bicolor* sp. n.



Figs. 168–176. Dorsal view of metasomata of Triaspina ♀: 168, *Triaspis chiu* sp. n.; 169, *T. chouwen* sp. n.; 170, *T. chunji* sp. n.; 171, *T. distinctus* sp. n.; 172, *T. hui* sp. n.; 173, *T. kueichia* sp. n.; 174, *T. robustus* sp. n.; 175, *T. tungpuensis* sp. n.; 176, *T. fessus* sp. n.

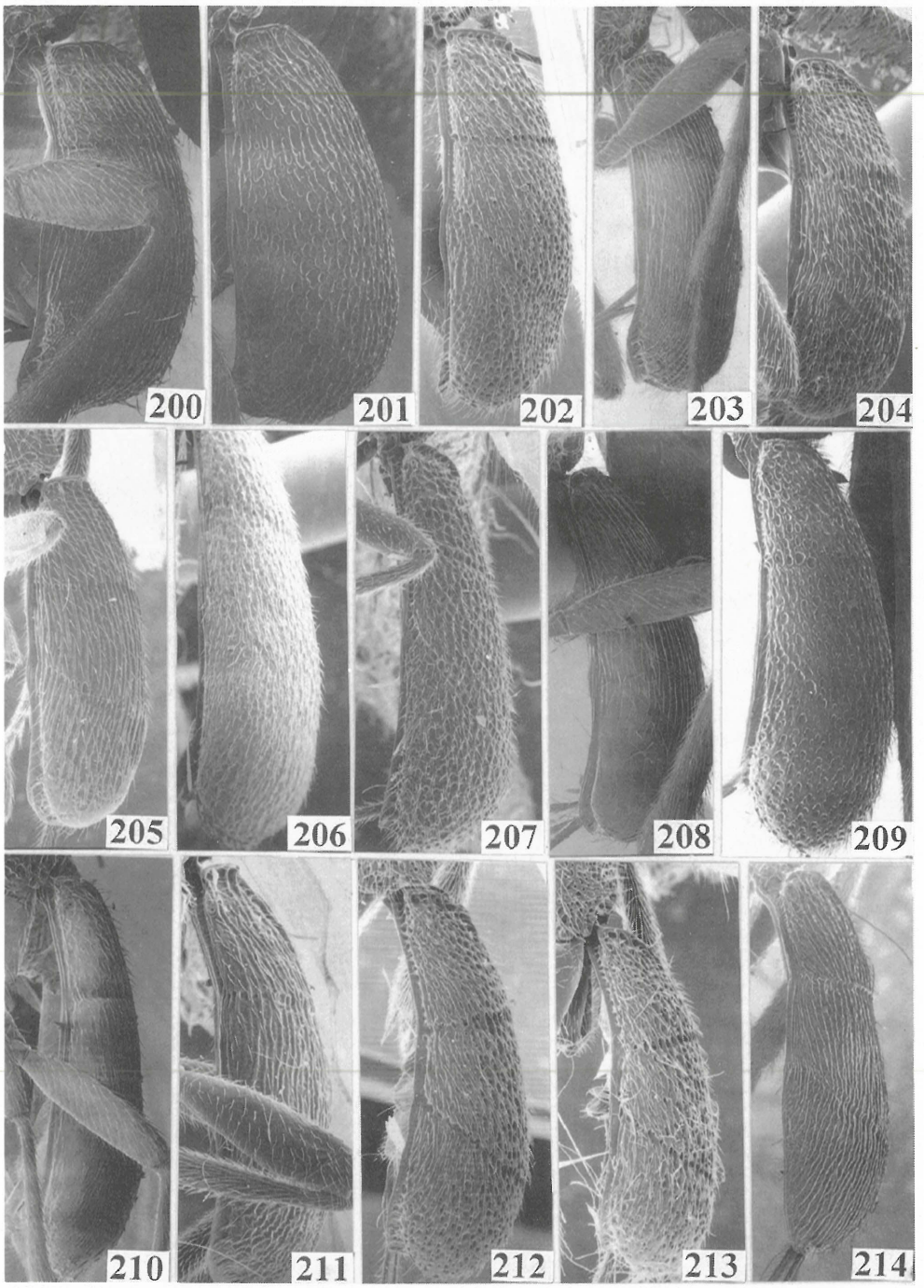


Figs. 177–186. Dorsal view of metasomata of Triaspina ♀: 177, *Triaspis ketiao* sp. n.; 178, *T. ovatus* sp. n.; 179, *T. shan* sp. n.; 180, *T. calvus* sp. n.; 181, *T. borpian* sp. n.; 182, *T. imitatus* Papp; 183, *T. lienhuachihensis* sp. n.; 184, *T. loi* sp. n.; 185, *T. plenus* sp. n.; 186, *T. curvatus* sp. n.

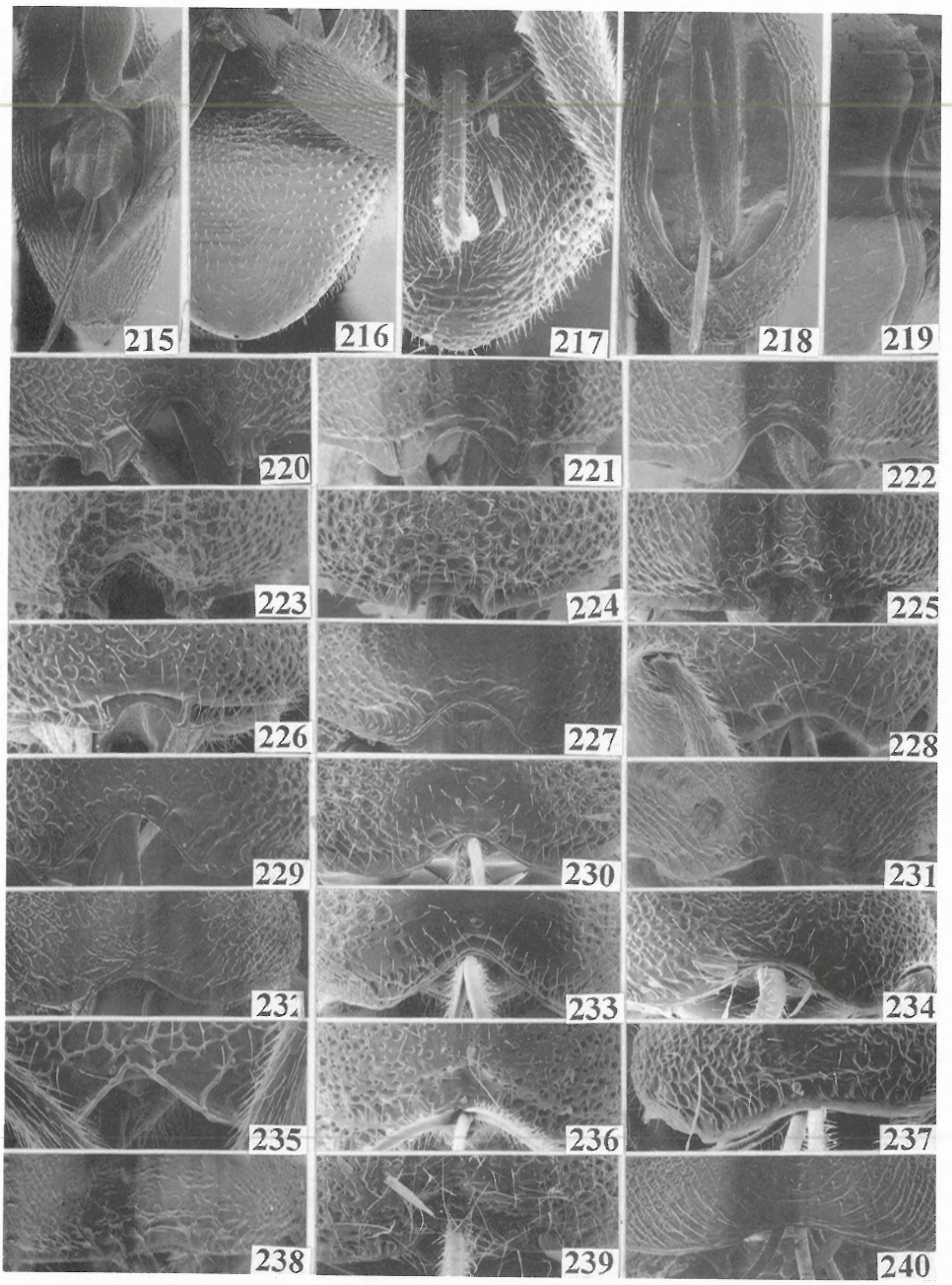


Figs. 187–188. Dorsal view of metasomata of Triaspina ♀: 187, *Triaspis concavus* sp. n.; 188, *T. shangchia* sp. n.

Figs. 189–199. Lateral view of metasomata of Triaspina ♀: 189, *Canalicephalus fugou* sp. n.; 190, *C. longus* sp. n.; 191, *C. taiwanensis* sp. n.; 192, *Triaspis chiu* sp. n.; 193, *T. chouwen* sp. n.; 194, *T. hui* sp. n.; 195, *T. beitun* sp. n.; 196, *T. bicolor* sp. n.; 197, *T. distinctus* sp. n.; 198, *T. loi* sp. n.; 199, *T. kueichia* sp. n.

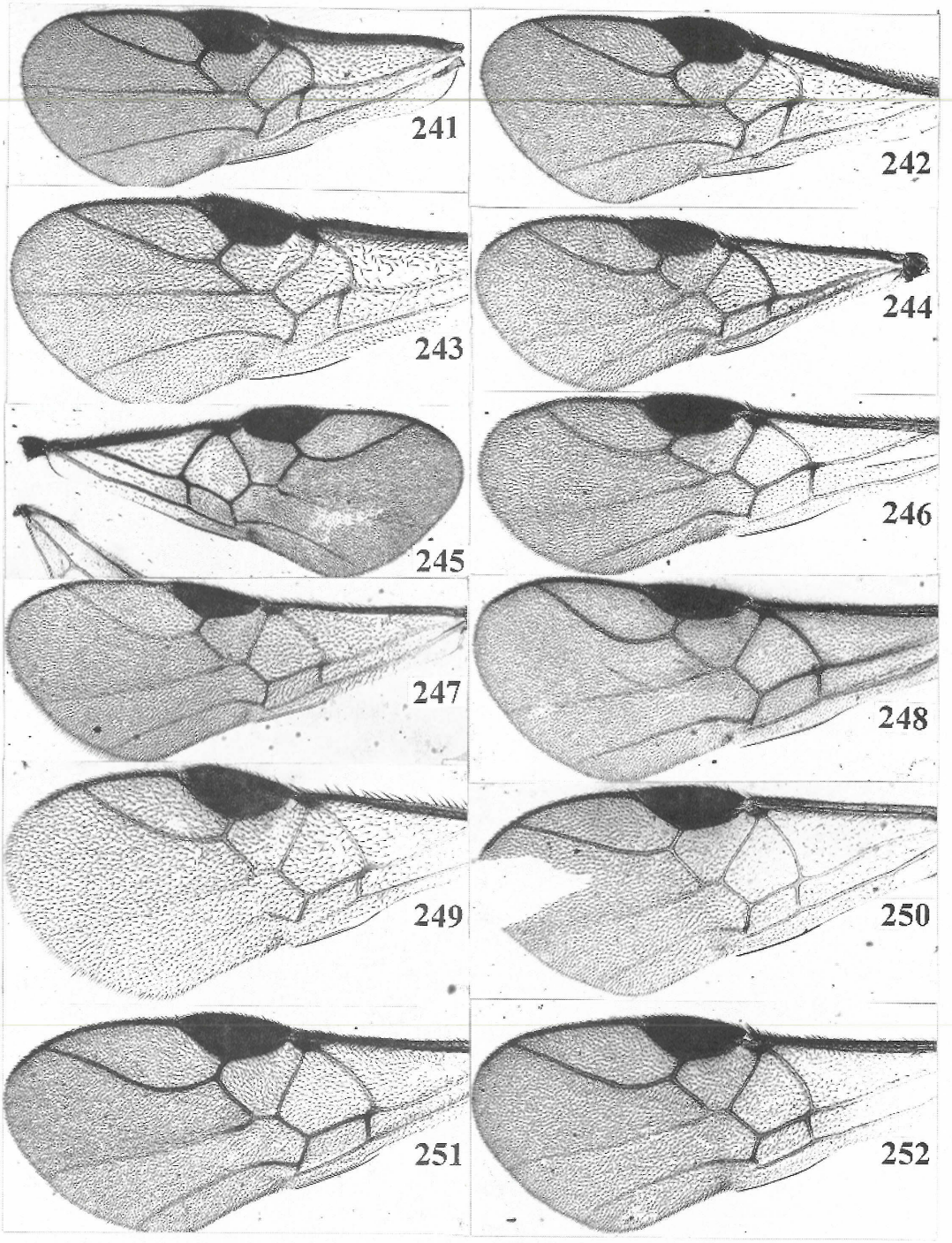


Figs. 200-214. Lateral view of metasomata of Triaspina ♀: 200, *Triaspis robustus* sp. n.; 201, *T. tungpuensis* sp. n.; 202, *T. shan* sp. n.; 203, *T. fessus* sp. n.; 204, *T. chunji* sp. n.; 205, *T. ketiao* sp. n.; 206, *T. borpian* sp. n.; 207, *T. imitatus* Papp; 208, *T. calvus* sp. n.; 209, *T. lienhuachihensis* sp. n.; 210, *T. plenus* sp. n.; 211, *T. ovatus* sp. n.; 212, *T. curvatus* sp. n.; 213, *T. concavus* sp. n.; 214, *T. shangchia* sp. n.

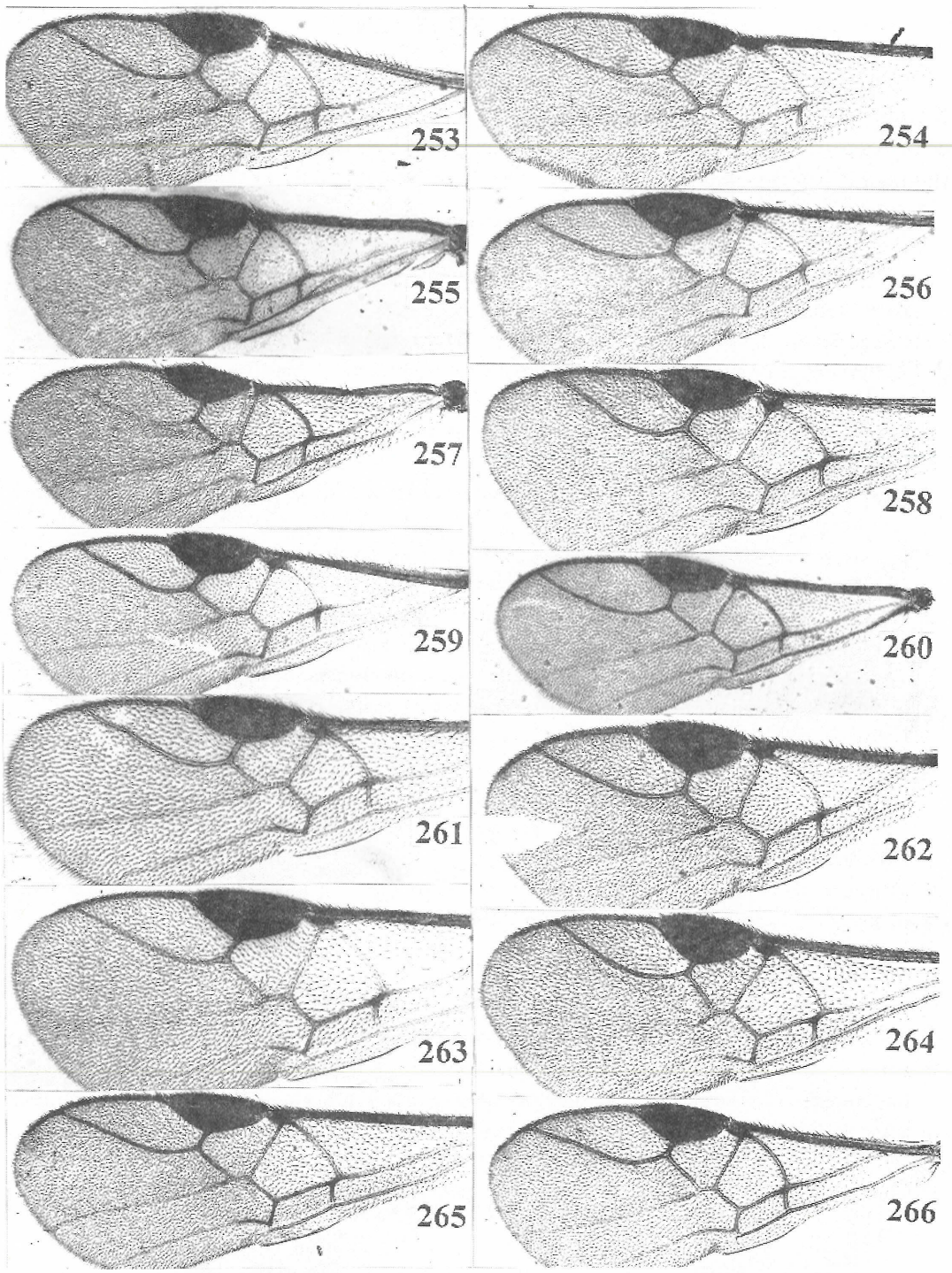


Figs. 215–218. Ventral view of apical metasomata of Triaspina ♀: 215, *Canalicephalus fugou* sp. n.; 216, *C. longus* sp. n.; 217, *C. taiwanensis* sp. n.; 218, *Triaspis lienhuachihensis* sp. n.

Figs. 219–240. Apical end of carapace of Triaspina ♀: 219, *Triaspis calvus* sp. n.; 220, *T. chouwen* sp. n.; 221, *T. chiu* sp. n.; 222, *T. hui* sp. n.; 223, *T. borpian* sp. n.; 224, *T. imitatus* Papp; 225, *T. loi* sp. n.; 226, *T. shan* sp. n.; 227, *T. bicolor* sp. n.; 228, *T. distinctus* sp. n.; 229, *T. tungpuensis* sp. n.; 230, *T. chunji* sp. n.; 231, *T. fessus* sp. n.; 232, *T. robustus* sp. n.; 233, *T. ketiao* sp. n.; 234, *T. kueichia* sp. n.; 235, *T. beitun* sp. n.; 236, *T. curvatus* sp. n.; 237, *T. ovatus* sp. n.; 238, *T. plenus* sp. n.; 239, *T. concavus* sp. n.; 240, *T. shangchia* sp. n.



Figs. 241–252. Forewings of Triaspina ♀: 241, *Canalicephalus fugou* sp. n.; 242, *C. longus* sp. n.; 243, *C. taiwanensis* sp. n.; 244, *Triaspis beitun* sp. n.; 245, *T. bicolor* sp. n.; 246, *T. borpian* sp. n.; 247, *T. calvus* sp. n.; 248, *T. imitatus* Papp; 249, *T. chiu* sp. n.; 250, *T. chouwen* sp. n.; 251, *T. chunji* sp. n.; 252, *T. curvatus* sp. n.



Figs. 253–266. Forewings of Triaspina ♀: 253, *Triaspis distinctus* sp. n.; 254, *T. fessus* sp. n.; 255, *T. hui* sp. n.; 256, *T. ketiao* sp. n.; 257, *T. kueichia* sp. n.; 258, *T. lienhuachihensis* sp. n.; 259, *T. loi* sp. n.; 260, *T. ovatus* sp. n.; 261, *T. plenus* sp. n.; 262, *T. robustus* sp. n.; 263, *T. shan* sp. n.; 264, *T. tungpuensis* sp. n.; 265, *T. shangchia* sp. n.; 266, *T. concavus* sp. n.

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REFERENCES

1. Achterberg, C. Van. 1988. Revision of the subfamily Blacinae Foerster (Hymenoptera: Braconidae). Zool. Verh. Leiden 249: 1-324.
2. Belokobylskij, S. A. 1994. To the knowledge of the braconid fauna of the Russian Far East (Hymenoptera: Braconidae): new species of the subfamily Brachistinae. Russian Entomol. J. 3(1-2): 81-108.
3. Bhat, S., and V. K. Gupta. 1977. The subfamily Agathidinae (Hymenoptera: Braconidae). Oriental Ins. Mongr. 6: 353pp.
4. Bohart, R. M., and A. S. Menke. 1976. Sphecid wasps of the world, a generic revision. University of California Press, Berkeley. 695pp.
5. De Saeger, H. 1948. Cardiochilinae et Sigalphinae (Hymenoptera: Apocrita) family Braconidae. Explor. Parc Nat. Albert, Miss. De Witte (1933-1935). 53: 1-272.
6. Gibson, G. A. P. 1989. Phylogeny and classification of Eupelmidae, with a revision of the world genera of Calosotinae and Metapelmatinae (Hymenoptera: Chalcidoidea). Mem. Ent. Soc. Can. 148: 3-121.
7. Fahringer, J. 1934. Opuscula braconologica. Palaearktische Region. Lieferung 3: 321-594.
8. Gauld, I. D. & B. Bolton (eds.). 1988. The Hymenoptera. 332pp. Oxford Univ. Press, Oxford.
9. Harris, R. A. 1979. A glossary of surface scullpturing. Calif. Dept. Food Agr., Occ. Pap. Ent. 28: 1-31.
10. Huber, J. T., and M. J. Sharkey. 1993. Structure. *In:* Goulet, H., and J. T. Huber, editors. Hymenoptera of the World: An Identification Guide to Families. Ottawa: Agriculture Canada. pp. 13-59.
11. Maeto, K. 1982. The genus *Homolobus* Foerster of Japan (Hymenoptera: Braconidae). I. subgenus *Homolobus*. Kontyu 50(2): 314-323.
12. Martin, J. C. 1956. A taxonomic revision of the Triaspidine Braconid wasps of Nearctic America (Hymenoptera). Publ. Dept. Agr. Can. 965: 1-156.
13. Papp, J. 1984. First survey of the Triaspidini species of the Indo-Australian region (Hymenoptera: Braconidae: Calyptinae). I. The genus *Triaspis* Haliday. Acta Zool. Hung. 30: 137-158.
14. Papp, J. 1991. First survey of the Triaspidini species of the Indo-Australian region (Hymenoptera: Braconidae: Calytinae). II. The genus *Schizoprymnus* Foerster, 1. Acta Zool. Hung. 37(1-2): 75-99.
15. Papp, J. 1993. First survey of the Triaspidini species of the Indo-Australian region (Hymenoptera: Braconidae: Calyptinae). III. The genus *Schizoprymnus* Foerster, 2. Acta Zool. Hung. 39(1-4): 129-173.
16. Stary, P. 1973. A review of the *Aphidius*-species (Hymenoptera: Aphidiidae) of Europe. Annot. zool. bot. 84: 1-85.
17. Townes, H. 1969. Genera of Ichneumonidae 1. Mem. Amer. Entomol. Inst. 11: 1-300.

臺灣小繭蜂科（膜翅目）之分類

VII. 三盾繭蜂亞族[1]

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摘 要

三盾繭蜂亞族（Triaspina）隸膜翅目、小繭蜂科、長繭蜂亞科（Helconinae）、短繭蜂族（Brachistina），全世界已知種類約290種，在臺灣則僅記錄1種。本文共描述臺灣產之3種凹頂繭蜂（*Canalicephalus*）與22種三盾繭蜂（*Triaspis*）。文中並附分屬與分種檢索表及形質圖。

關鍵詞：三盾繭蜂亞族、長繭蜂亞科、小繭蜂科、分類、臺灣。

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